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HEADQUARTERS
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AIRMOBILE OPERATIONS

PREFACE

During 11 years of battlefield application in the Republic of Vietnam, the airmobile concept was tested and refined. The helicopter provided battlefield mobility to infantrymen and other members of the combined arms team that was unmatched in history. Vietnam-proven airmobile techniques provide the basis for current airmobile tactics. Airmobile operations contribute significantly to the overall combat effectiveness of US and allied forces.

The October 1973 Arab-Israeli War showed that the helicopter can survive on the modern battlefield when properly employed. Both sides used helicopters extensively for a variety of tactical and support missions.

The helicopter was used successfully in Vietnam and in the Near East, and there is every indication that its contribution in any future war will be equally important.

This manual tells how to conduct airmobile operations. The techniques described are applicable in any type environment; however, some of the operations discussed may not be possible on a mid-intensity battlefield. At the very least, air parity with the enemy will have to be gained and his air defense weapons either suppressed or bypassed. Airmobile operations will have to be conducted with speed, secrecy, and precision by a well-trained, highly proficient combined arms team. To gain that proficiency, individuals and units must train in airmobile operations prior to being committed to combat.

Although nonmechanized infantry is better suited for airmobile operations, there will be situations when mechanized units can best accomplish their mission by capitalizing on the high degree of mobility possible with the helicopter. An important point to remember is that helicopters are used in conjunction with mechanized vehicles, and the capabilities of both are fully exploited.

There is not much difference in the mobility of US mechanized and armored battalions as compared with those of the Threat. The real mobility differential could be in airmobility. The full potential of airmobility is still to be developed.

Commanders should not hesitate to experiment during training and participate in that development process. This manual provides basic information for the unit to use, modify, expand, or refine as needed to best accomplish its mission.

*This manual supersedes FM 57-35, 25 March 1971.

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The words "he," "him," "his," "man," and "men," when used in this publication, represent both the masculine and feminine genders unless otherwise specifically stated.

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AIRMOBILE OPERATIONS

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CHAPTER 1

AIRMOBILE OPERATIONS ON THE BATTLEFIELD

Section I. GENERAL

The helicopter provides the ground force commander the means to rapidly disperse and concentrate forces at the critical time and place to influence the tactical situation and then quickly extract the force and employ it in a different area, if needed.

Airmobile forces can bypass enemy barriers and defenses and strike deep in his rear area. With the loss of key terrain and support installations and the disruption of land lines of communications, the enemy's forward deployed forces are weakened.

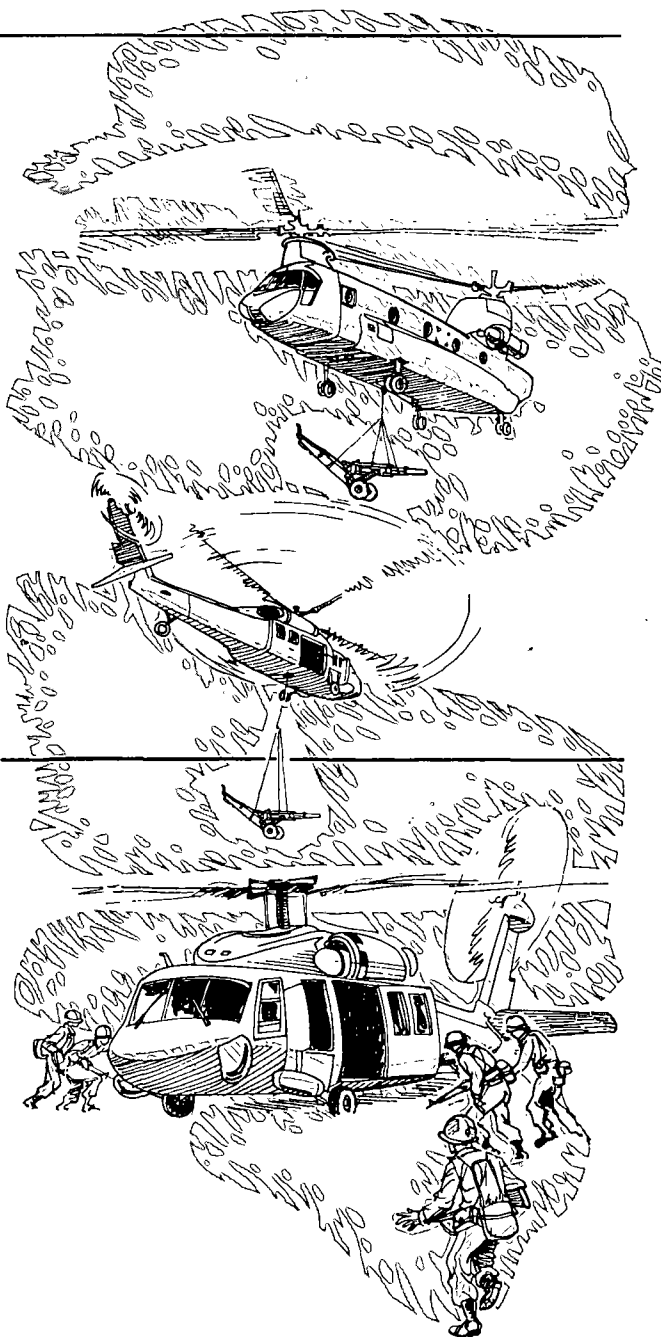
To capitalize on helicopter mobility, the ground force commander integrates helicopters into his combat planning and operations.

Section II. CAPABILITIES AND LIMITATIONS

USE OF HELICOPTERS FOR TACTICAL MOBILITY

Airmobile operations should be characterized by careful planning and deliberate, bold, and violent execution. The fundamental characteristic of airmobile operations is the use of helicopters to provide the ground force a tactical mobility advantage over the enemy. *No other force on the battlefield can respond to a tactical situation and move considerable distances as rapidly as airmobile forces.*

When an infantry battalion is given aviation assets to conduct operations, an airmobile task force (AMTF) is formed.



HELICOPTER-INFANTRY TEAM

AIRMOBILE FORCES CAN:

- Attack enemy positions from any direction.
- Strike objectives in otherwise inaccessible areas.
- Overfly or bypass barriers and obstacles.
- Conduct raids using helicopters to insert and withdraw forces.
- Rapidly concentrate, disperse, or re-deploy to extend their area of influence.
- Provide the commander flexibility by allowing him to retain a smaller reserve and commit a larger portion of his force to action.
- React rapidly to tactical opportunities and necessities.
- Rapidly place forces at tactically decisive points in the battle area.
- Provide surveillance over a wide area.

AIRMOBILE FORCES ARE LIMITED BY:

- Weather extremes that hamper or stop aircraft flights.
- Helicopter lift capacity that restricts the type and quantity of supporting weapons and equipment that can be airlifted into the objective area.
- Air lines of communications, once inserted beyond friendly lines.
- Enemy tactical aircraft, air defense, and electronic warfare systems.
- Shortage of ground vehicle transport on completion of airmovement.
- Increased vulnerability to enemy action during the loading and landing phases.

SEE THE BATTLEFIELD

The first requirement for successful airmobile operations is to know the enemy.

WHAT TO KNOW

The task force (TF) commander must understand enemy doctrine and battlefield disposition. He must know the terrain over which the operation is to be conducted, and know the capabilities and limitations of his TF. He must understand the capabilities of the enemy's weapons and how they are employed.

Since the AMTF brings together ground and aviation units, the commander must have a thorough appreciation of the enemy threat to both. He must learn to think like the enemy and to anticipate how the enemy will array weapon systems. The commander can then have the initiative, rather than reacting to enemy initiatives.

WHY THE NEED TO KNOW

The AMTF is vulnerable from lift-off to landing. During the airmovement phase, enemy air defense weapons represent the biggest danger. Enemy ground forces pose the greatest danger during landing. Because of this vulnerability, the AMTF commander tries to anticipate enemy dispositions and reactions at every point in the operation.

WHAT INFORMATION TO OBTAIN

To obtain information about the enemy, the commander employs every available intelligence-gathering means. He seeks information concerning:

Disposition and strength of enemy forces in the objective area and along the routes of flight into and out of the objective area.

Disposition and strength of enemy forces capable of reinforcing the objective area and reaction time.

Disposition and density of enemy air defense weapons.

FIGHT AS A COMBINED ARMS TEAM

Each member of the combined arms team contributes to the outcome of a mission.

Seldom will the AMTF face a threat that can be defeated by a single arm. To insure success, the TF commander integrates all the assets at his disposal into a fighting team.

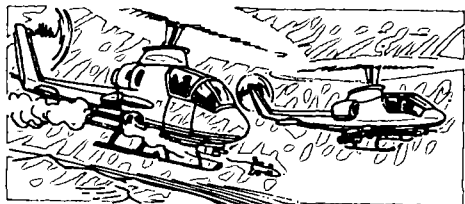
AMTF SUPPORT ELEMENTS



Infantry to fight enemy infantry and antitank guided missiles (ATGM) to destroy enemy armor.



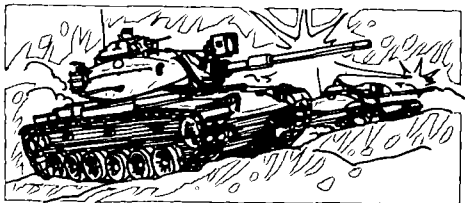
Field artillery to destroy or suppress enemy infantry, artillery, tanks, and air defense weapons.



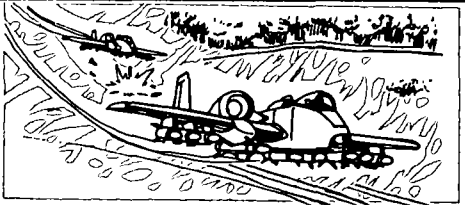
Attack helicopters to destroy or suppress enemy infantry, tanks, and air defense weapons, and to overwatch and provide security for assault aircraft.



Engineers to assist movement by improving pickup and landing areas and by slowing enemy movement with obstacles.



Armor to destroy enemy armor and reinforced enemy positions when it is feasible to employ tanks in conjunction with the assaulting airmobile force.



Tactical air (TACAIR) to provide close air support to the ground units and to attack enemy air defense weapons and provide security for the lift helicopters.

CONCENTRATE COMBAT POWER AT THE CRITICAL TIME AND PLACE

The AMTF commander often needs to concentrate combat power on short notice.

Helicopter mobility, whether used for defensive or offensive initiatives, gives the commander combat power quickly where he needs it.

For example, heliborne reserves can bolster a weak point against heavy enemy attack.

In the offense, airmovement of troops from various sectors of the front to a single sector can give the commander a favorable combat power ratio where he did not have it before.

UTILIZE TERRAIN, EFFECTS OF WEATHER, AND LIGHT CONDITIONS FOR SURVIVABILITY

WHY CONCEAL MOVEMENT

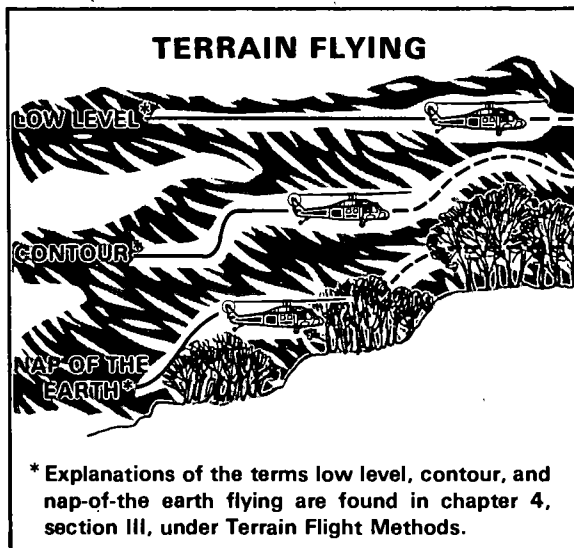
Enemy target acquisition means that are not destroyed or suppressed can detect AMTF movement and compromise mission accomplishment.

HOW TERRAIN UTILIZATION WORKS

The AMTF uses terrain to conceal movement, minimize exposure to direct fire weapons, and reduce the chance of detection by air defense radar.

To capitalize on the terrain, the AMTF employs tactical terrain flying. It is more than just flying low. It keeps terrain between

the enemy and the AMTF to capitalize on terrain protection.



HOW LIMITED VISIBILITY BENEFITS AND LIMITS OPERATIONS

Terrain is not the only means used to avoid the enemy. Reduced visibility, whether caused by darkness or marginal weather, provides concealment from visual observation but not from radar. Operations during reduced visibility favor the attacking AMTF and offer substantial passive protection from enemy tactical aircraft and optically directed weapons. This protection can be exploited only in certain types of marginal weather, however.

Weather extremes (such as hail, sleet, fog, heavy rain, snow, and high or gusty winds) preclude airmobile operations. At some levels of reduced visibility, the AMTF may still be able to operate but with reduced support. The TF's ability to locate and adjust fire on enemy positions may also be reduced. Ground fog or smoke may force aircraft to fly higher and slower so pilots can navigate and avoid terrain obstacles.

The effects of terrain, weather, and visibility should be exploited.

MAINTAIN FLEXIBILITY

An AMTF must be flexible enough to modify its plans to adapt to changing tactical situations.

To have adequate flexibility, the AMTF must:

Have standing operating procedures (SOP) which facilitate quick response to tactical opportunities and changes in situations.

Designate primary and alternate pickup zones (PZ), landing zones (LZ), and flight routes.

Develop a detailed fire plan which allows for rapid shifting and adjustment of flight routes, PZs and LZs.

Plan for contingencies by assigning "be prepared" missions to subordinate units.

Use attack helicopter units to overwatch assault aircraft and ground forces and to respond quickly to unexpected enemy actions.

SUPPRESS OR DESTROY ENEMY WEAPONS AND ACQUISITION MEANS

Suppression reduces the effectiveness of enemy weapons and electronic warfare (EW) equipment. Suppression is accomplished through the use of supporting fire, smoke, and electronic countermeasures (ECM).

Maximum use is made of artillery, tactical air (TACAIR), attack helicopters, and ground fire to suppress enemy air defense systems while the AMTF is en route and to counter enemy ground fire weapons when the AMTF has landed.

MAINTAIN CONTROL

The commander must maintain control at all times. To maintain control, the AMTF must have the proper mix of communications, SOPs, and control measures.

HOW TO CONSIDER COMMUNICATIONS

The AMTF commander relies on communications to transmit orders, receive information, distribute intelligence, and coordinate firepower. When planning tactical operations, communication means are planned just like any other part of the operation. Local conditions and their effect on communications (desert, tropical, mountain, arctic) must be considered. Since the AMTF is restricted primarily to radio communication, personnel are versed in proper radio procedures to reduce vulnerability to enemy EW. The AMTF commander must also have an alternate communications plan such as a series of pyrotechnics or signals employing aircraft lights and lightflashing instruments. This allows continued communication when a partial or total loss of radio transmission occurs.

Airmobile operations are planned in detail so that radio traffic is kept to a minimum (app D).

HOW TO CONSIDER SOPs

It is important that ground and aviation units work together to develop and refine compatible SOPs. The airmobile SOP should cover procedures for recurring actions in airmobile operations.

SOPs should be distributed throughout the command and rehearsed down to the lowest level to reduce operation planning time.

WHEN THE SOP IS EFFECTIVE

When properly developed, the SOP:

Simplifies orders by reducing their number and length.

Expedites operations by reducing confusion and errors.

Promotes understanding and teamwork.

Simplifies training requirements by informing new arrivals or attached units of organizational procedures.

CONTROL AIRSPACE

AMTF commanders use control measures to simplify coordination of operations. While on the ground, the AMTF employs control measures common to other ground operations. However, the commander also controls airspace used by assault, attack and observation helicopters; air ambulances; TACAIR; artillery, mortars; and air defense.

To keep aircraft traffic to a minimum, only aircraft directly involved in the operation should be in the area.

The AMTF commander requests that the operational area be designated a restricted area for a specified period of time. This action is accomplished through the Brigade and Division Airspace Management Element (BAME, DAME).

Planning is essential to effective control of military operations. The plan should identify command relationships and control measures used in the conduct of the operation. A thorough plan can reduce confusion and eliminate misunderstanding. It aids command and control by addressing potential problems before they occur.

In-depth planning allows the AMTF commander to decentralize execution of the operation. This can increase effectiveness and reduce the volume of radio traffic.

Section IV. INFANTRY BATTALION OPERATIONS IN THE AIRMOBILE ROLE

The different type operations the infantry battalion can perform are not fundamentally changed by providing it helicopters. Since a defensive mission normally involves holding terrain, other forces, if available, should be used so that the AMTF will not be tied to the terrain and lose its helicopter mobility advantage. (When it is used in the defensive role, its air assets are employed elsewhere, thus terminating that AMTF.)

OPERATIONS PERFORMED

The type operations the AMTF performs include:

- Attack.
- Secure and defend.
- Raid.
- Delay.
- Reconnaissance in force.
- Exploitation.
- Pursuit.
- Rear area security.
- Reinforcement of committed units with mobile antitank teams.
- Screening.

NOTE: Chapter 5 describes how airmobile operations are accomplished.

USE IN ARMOR- RESTRICTIVE TERRAIN

Since the AMTF does not have protection provided by armored vehicles, it is normally not committed against armored formations. The AMTF executes missions best in armor-restrictive terrain (mountains, heavily vegetated areas, and built-up areas) because of its limited antiarmor capability.

ATTACK

There are two general types of attack: the hasty and the deliberate. The major difference between the two is time available to plan.

The decision to conduct an attack is based on the commander's analysis of the situation.

HASTY ATTACK

A hasty attack may be made quickly (after contact is established) and initiated through an oral, fragmentary order (FRAGO). Considerations that might dictate this type of attack include:

- ☐ *A short-term advantage* that may disappear if not acted upon immediately.
- ☐ *The mission* dictates an immediate attack to support the overall scheme of maneuver.
- ☐ *The enemy* is known or suspected to be weak or occupying poorly prepared positions and the commander decides to attack before the enemy can improve his defenses.
- ☐ *The current task organization and disposition* are adequate to meet the threat.
- ☐ *Adequate combat power* is immediately available.
- ☐ *The psychological benefits* of retaining the initiative outweigh risks.

DELIBERATE ATTACK

At other times, a deliberate attack is conducted after developing a detailed, coordinated plan; receiving additional assets; changing task organization as necessary; and gathering detailed intelligence. Considerations that might lead to this type of attack include:

- ☐ *The commander* orders the attack to commence at a specified time as part of the overall scheme of maneuver and fire support plan.
- ☐ *The enemy* is suspected to be strong or occupying well-prepared positions. Before the attack can be initiated, detailed intelligence is critical.

☐ **PZs and LZs and flight routes** must be developed.

☐ **Favorable weather and/or light conditions** do not exist but are forecast for some future time.

☐ **Current task** organization and disposition are unacceptable.

☐ **Additional combat power** (e.g., artillery, aircraft) is required.

☐ **Previous encounters** have left the unit physically exhausted or with numerous casualties. Time is required to rest, reorganize, and reinforce.

☐ **Combat support/service support elements** must be repositioned or are otherwise unable to support the attack.

☐ **Existing communications** are poor and control is difficult. Time is needed to improve facilities.

AMTF ROLE IN THE ATTACK AS PART OF A LARGER FORCE

When a larger force, of which the AMTF is part, conducts a deliberate attack, the AMTF normally conducts a deliberate attack too. On occasion, however, the AMTF may conduct a hasty attack in support of a deliberate attack.

A hasty attack is usually conducted:

During a movement to contact.
During a reconnaissance in force.
During the exploitation or pursuit.
To counter enemy landings in rear areas (rear area security).
During a counterattack.

A deliberate attack is usually conducted:

During a river crossing (to secure the far bank).
To secure a key terrain feature.
In a built-up area (to secure a critical building, installation, or terrain feature).
When attacking an enemy strongpoint or armored force.

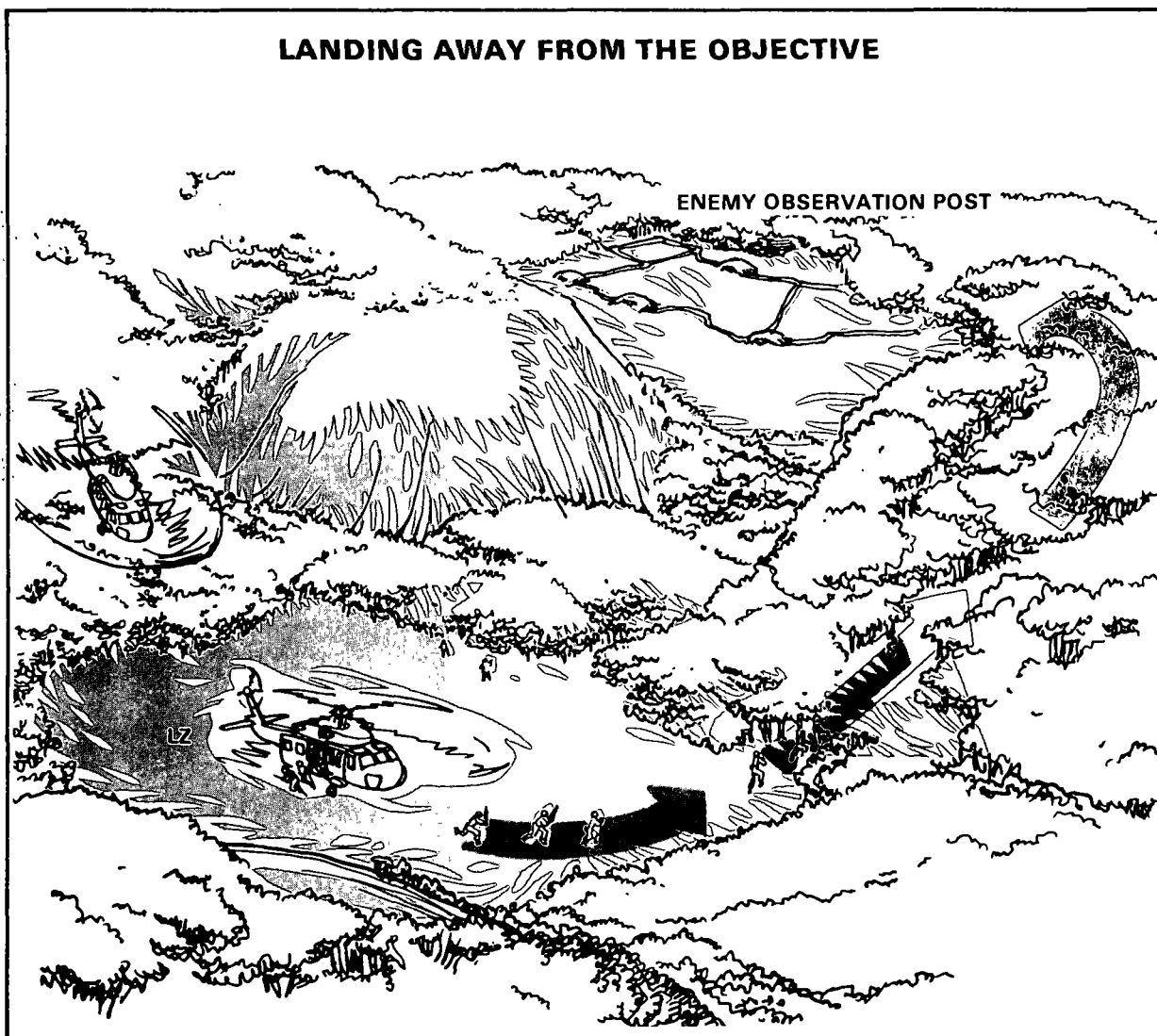
ATTACK ON A PREPARED ENEMY

An attack against a heavier or well-prepared enemy force, particularly on the mechanized (mech)/armor battlefield, may subject the AMTF to devastating firepower.

For this reason, the AMTF commander lands units away from the objective and conducts a dismounted attack in conjunction with friendly armored/mechanized forces.

The AMTF commander must also consider that a highly mobile enemy force could encircle the AMTF before it moves from an LZ. Consequently, he selects LZs in armor-restrictive terrain and employs antitank (AT) weapons and attack helicopter units against likely armor approaches. When used with accurate intelligence, these actions provide time to organize after landing and to attack the objective or prepare defense positions if the enemy attacks first.

LANDING AWAY FROM THE OBJECTIVE



SECURE AND DEFEND

The secure-and-defend mission is conducted when an objective, such as a vital terrain feature, must be seized from the enemy and retained. The mission is planned in detail (like the deliberate attack).

INSERTION PHASE

The first phase is an airmobile operation to secure the objective. This should be a single-lift insertion of sufficient combat power to defeat enemy forces on the objective.

DEFENSE PHASE

After the objective is secured, a perimeter is established with each unit of the TF assigned a sector to defend. The size of the perimeter is dependent on the terrain, combat power available, and enemy capabilities. The perimeter should contain all terrain essential to the defense of the objective.

To reduce ground movement on and around the objective, assaulting elements land close to their objectives, and combat support elements land where they are to be emplaced.

MISSION EXAMPLES

The mission may be to secure an airfield, a chokepoint, or a bridge in the enemy's rear. In such instances, the mission is conducted as part of a friendly offensive with early linkup anticipated. The mission may be to secure an area for a control headquarters, artillery units, command installations, and/or logistic facilities.

The TF needs time to prepare the defense without interference from reacting enemy forces. To gain time:

Air cavalry and attack helicopter units locate and engage the enemy.

Aerial-delivered mines may be requested and employed to reduce enemy mobility.

Antiarmor systems are inserted early in the assault to engage the enemy at maximum range.

Fires are planned to seal off the objective area. Fire planning includes fire support assets inside the perimeter (mortars) as well as those outside the perimeter that are in range (TACAIR, artillery).

The limited staying power of the AMTF dictates early linkup with ground units, reinforcement by other units, or extraction from the enemy area.

The TF takes everything required to sustain combat operations for the period of the defense. However, emergency resupply by helicopter, paradrop, or low-altitude parachute extraction may be required.

RAID

A raid is an attack into enemy territory. It is conducted for a specific purpose and with no intention of holding terrain. The raiding force withdraws after it accomplishes its mission. Raids may be conducted to:

Capture personnel or materiel.

Harass, deceive, or disrupt enemy operations and/or plans.

Destroy enemy installations and/or materiel.

Cause the enemy commander to employ more combat forces for rear area security.

RAID OBJECTIVES

Key objectives for a raid by airmobile forces include:

Command posts.

Communication centers.

Airfields and logistic installations.

Fire support elements.

Key enemy personnel.

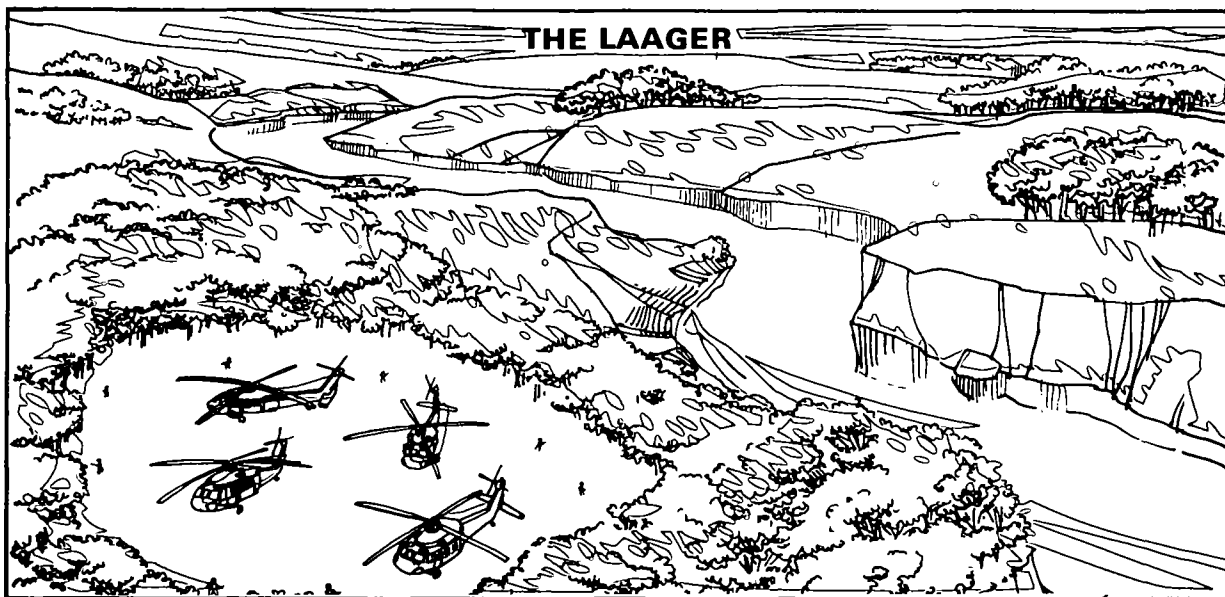
CONDUCT OF RAIDS

The force should have enough helicopters to insert the raiding force in one lift. If possible, extra helicopters should accompany the force as spares in the event some lift helicopters are rendered nonflyable.

A raid is coordinated with other headquarters to insure that other friendly operations do not conflict in time or space, and that one operation does not compromise the other. Flight routes through forward units are coordinated to prevent engagement by friendly aircraft or air defense weapons.

An airmobile raid is planned and conducted like a deliberate attack, but since the raiding force intends to withdraw, withdrawal plans are critical. Alternate withdrawal plans and escape and evasion plans are included in case aircraft cannot extract the force.

The aircraft may laager in a preselected site until the raid force is ready for extraction. This is done so that the aircraft do not have to make multiple penetrations of high density air defense along the line of contact. Ideally, laagers are located in restrictive terrain to hide the aircraft from enemy forces. Infantry forces will be required to secure the laager site.



Airmobile raids may be conducted beyond the range of friendly field artillery. In such cases, attack helicopter units overwatch and indirect fire support is provided by mortars.

TACAIR cap (cover) is requested to provide additional security and overwatch for the lift helicopters en route to the objective, and to assist with close air support during the attack on the objective by the ground units.

DELAY

A delay is an operation where the AMTF trades time for space.

A delay may be conducted to:

Gain time for other forces to deploy.

Serve as an economy-of-force measure to allow concentration in other areas.

Determine enemy composition, strength, intentions, and capabilities.

Channel the enemy into selected areas to destroy him.

The AMTF is seldom given a "timed-delay" mission. This type mission would require a TF to defend for a specified time. This restricts the AMTF's mobility and may subject it to unacceptable losses.

DELAY IN SECTOR MISSION

The delay-in-sector mission is more appropriate. The TF disengages by helicopter before it is decisively engaged or pinned down. Against armor forces, the AMTF should displace at distances of no less than 1,500 meters because of the range of armor force firepower and its rapid closure rates. This characteristic of armor forces restricts use of the AMTF in the covering force area.

If the TF operates in the covering force area against armor, it supports heavy forces

— mech, armor, or armored cavalry — in restrictive terrain.

SECURITY FORCE MISSION

The AMTF can be given a security force mission against enemy light infantry. The TF can observe a wide area and direct fires on the enemy. Disengagement is easier than with armored forces since light infantry is vulnerable to artillery and its closure rate is slower than armor.

ECONOMY-OF-FORCE MEASURE

The AMTF delays in an economy-of-force area by concentrating forces along likely avenues of approach into the sector. Outposts observe other areas within the sector. When the enemy attacks, all available fires are used to force the enemy to deploy again and again and to slow his advance. The TF commander uses air cavalry and attack helicopter teams to defeat armor and hasty attacks and raids to disrupt the enemy advance.

While planning, the TF commander identifies potential PZs, LZs, flight routes, and battle positions throughout his sector. These are pointed out to all subordinate units. *When an element displaces, the leader moves his units with maximum speed.*

HELICOPTER-RELATED FACTORS

Two critical factors in the delay are related directly to the helicopter.

Effects of Weather and Obscurants

There are times when the weather is so bad that helicopters cannot fly. At other times, the aircraft cannot land in a PZ because of enemy or friendly smoke. Plans must be made to cover the ground withdrawal of the delaying force when helicopters cannot be employed. This will include artillery, mortar, and close air support.

Helicopter Allocation

Allocation of sufficient aircraft is an essential part of the delay plan. An AMTF must be able to displace all its forces simultaneously.

If an attack occurs across the TF front, all elements move simultaneously to subsequent positions.

RECONNAISSANCE IN FORCE

A reconnaissance in force is conducted to determine or test the enemy's disposition and strength or to develop intelligence. It is conducted when the enemy situation is vague.

The reconnaissance in force may be conducted as an independent operation or as part of a larger force. The AMTF lands units in multiple LZs in an assigned area of operation (AO) with each unit having objectives to secure. When the enemy reacts to the attack units, the TF withdraws or exploits discovered weaknesses by conducting a hasty attack with unengaged units.

The reconnaissance in force is an *ideal* mission for the AMTF in an insurgent environment in order to keep constant pressure on a guerrilla force. The AMTF reacts rapidly by conducting numerous, brief operations to keep the enemy off balance and moving.

The AMTF is suited for reconnaissance-in-force operations against conventional light infantry forces. However, it is *not* suited for such operations in a strong armor threat area due to the likelihood of ground contact with an enemy force that has superior firepower, mobility, and protection.

EXPLOITATION

Exploitation is an operation undertaken to follow up success in the attack. Attacks are conducted with two overriding requirements

— speed and violence. The attackers bypass pockets of resistance to concentrate on the destruction of the more vulnerable headquarters, combat support, and combat service support units. They disrupt the enemy's command and control; his flow of fuel, ammunition, repair parts, food, and other necessities; and his air defenses and artillery. This weakens and/or destroys the enemy defense and makes it possible for a smaller force to overpower a larger enemy. Enemy air defenses are avoided or suppressed for the AMTF to exploit the situation.

PURSUIT

Pursuit is an offensive action against a retreating enemy. Its purpose is to envelop the retreat and destroy the enemy force. An AMTF, operating as part of the pursuit force, can expect to be ordered to bypass resistance of any kind and move relentlessly to deep objectives which serve as chokepoints for the retreating enemy. The helicopter provides the AMTF with the high degree of mobility required to conduct pursuit operations.

REAR AREA SECURITY

The AMTF is given a rear area security mission to counter an enemy airmobile, airborne, or guerrilla infiltration threat.

The AMTF monitors likely enemy infiltration routes and probable target areas for airborne or airmobile attacks. Probable LZs and PZs are identified and monitored by observation posts or remote sensors. Potential infiltration routes in unoccupied terrain are monitored with sensors to detect the enemy as early as possible.

Air cavalry units under the operational control of an AMTF can provide wide-area reconnaissance, security, or economy-of-force enhancement. Air cavalry units are integrated into reaction force plans since they can often arrive first in the threatened area. They attempt to contain the enemy,

report his strength and dispositions, and then provide support to reaction forces as they arrive.

NOTE: Rear area security operations should be coordinated with designated military police, civic action and/or civil affairs groups, and other military and civilian organizations (FM 19-4, FM 31-85). These units may provide internal security and local security within specified areas of responsibility.

REINFORCEMENT OF COMMITTED UNITS WITH MOBILE ANTITANK TEAMS

Division or brigade commanders may direct the employment of AMTF AT platoons to reinforce threatened sectors or add depth to the battle area.

The AT platoons are taken from a reserve unit or a unit that is not protecting an armor approach.

Tube-launched, optically tracked, wire-guided (TOW) missile sections are used for their long-range fires and accuracy. Careful consideration is given to planning the extraction of AT platoons because they lack ground mobility. An infantry squad may accompany each section to provide security.

Depending on the number of sections employed, the AT platoon leader and/or the platoon sergeant accompanies them for command and control.

The unit receiving an AT section assumes responsibility for effective positioning, integrating their fires with other elements, and providing necessary support (app G).

SCREENING

An AMTF screening force provides early warning over an extended frontage.

Screening missions are assigned to:

Provide timely warning of enemy approach.

Maintain visual contact and report on movement.

Destroy or repel small enemy forces by employing organic and/or supporting fires.

Impede the advance of larger forces and destroy the enemy by employing long-range organic fires.

A screening mission employs a series of observation posts (OP) overlooking enemy avenues of approach and the areas between them. Patrols cover deadspace between OPs and cover other areas during periods of limited visibility. When contact is established, the screening force withdraws on order, maintaining visual or electronic contact, and reports enemy movements. As in the delay, timely displacement is critical to AMTF survival.



CHAPTER 2

THE THREAT IN MODERN BATTLE

Section I. GENERAL

There are two general type Threat forces: the *armor-heavy Threat* of the Soviet model facing Western Europe, and the *infantry-heavy Threat* which exists in Asia and other parts of the world.

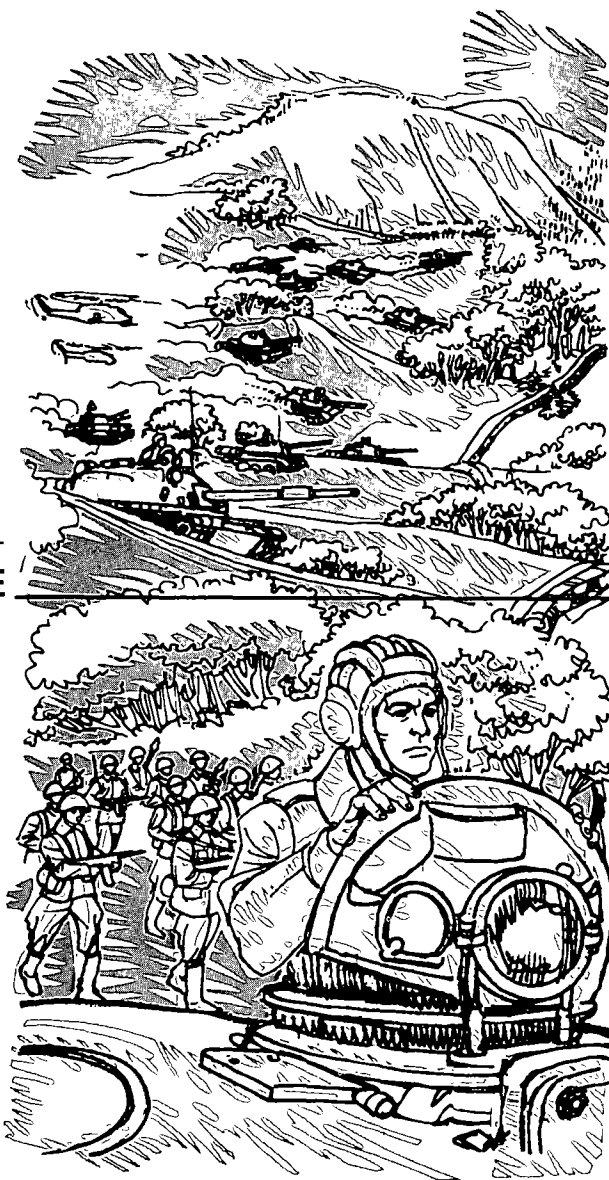
This chapter provides a broad overview of Threat doctrine, tactics, and weapons systems with primary emphasis on the air defense threat. A more detailed discussion of the Threat can be found in FM 7-20 (once on the ground the airmobile task force [AMTF] operates the same as other infantry).

FM 1-2 provides extensive coverage of the air defense threat and how to defeat it.

Section II. THREAT DOCTRINE—
EUROPE

The Warsaw Pact nations have fielded a modern, mobile, well-balanced fighting force trained to maintain a fast tempo of offensive combat. *Even its defensive doctrine is part of an offensive strategy.* Defense is only a temporary expedient while awaiting an opportunity to attack.

In the offense, Warsaw Pact forces advocate the concentration of superior forces and firepower in a combination of frontal attacks, envelopments, and deep combined arms thrusts into the defending force's rear. They anticipate an offensive momentum which allows them to advance 30-50 kilometers a day in a nonnuclear environment and 60-100 kilometers a day in a nuclear environment.



WARSAW PACT TACTICAL PRINCIPLES

These principles support the high-speed offensive:

Seek surprise at all times to paralyze the opponent and deprive him of the ability to react effectively.

Achieve mass in decisive areas by concentrating men, materiel, and firepower to rupture the opponent's defenses.

Breach defenses at weak positions and rapidly advance into rear areas.

Bypass strongly defended areas, leaving them to be neutralized by following echelons.

Use massive artillery support to include mortars, multiple rocket launchers, antitank (AT) guns, and tanks: mass up to 100 tubes per kilometer.

Destroy nuclear and AT weapons systems.

Operate under a dense air defense umbrella.

Achieve air superiority and conduct air-strikes in rear areas.

Employ radio-electronic combat as a primary element of combat power.

Rapidly overcome obstacles.

Conduct operations under all visibility and nuclear, biological, and chemical (NBC) conditions.

THREAT OFFENSE

Warsaw Pact offensive forces advocate the combined arms concept. Motorized rifle troops and tanks consistently operate together, supported by meticulously planned

artillery fires. Unit structure is designed to adapt readily to changing combat requirements by the attachment of supporting units.

The first echelon attempts to rupture and pass through opposing defenses. The second echelon is used to defeat bypassed units and to maintain the momentum of the attack.

In addition to attack echelons, the Threat commander retains a reserve which consists of motorized rifle or tank units. The reserve size varies, but it is relatively small. It is the commander's contingency force. He uses it to replace destroyed units, repel counterattacks, provide local security, and act as an exploitation force.

THREAT DEFENSE

The Threat's main emphasis is on the offensive, but he also recognizes that there are situations which could force establishing a defense.

A hasty or deliberate defense may be established. The hasty defense will be viewed as a temporary mission and employed only until the offensive can be resumed.

If the Threat does not have an adequate force for the offense, and expects a major attack, the deliberate defense is established.

There is no clear-cut distinction between the two types of defense. The establishment of a deliberate defense, compared to the hasty, is a matter of initial intent and concept of duration of the mission. The latter stages of a hasty defense may look very much like the early stages of the deliberate defense. A hasty defense may be converted to a deliberate defense.

DEFENSE IN DEPTH

Threat doctrine calls for defense in depth and maximum use of manmade and natural obstacles.

Depth is obtained by organizing the defense in echelons.

SECURITY ECHELON

The security echelon or zone is that portion of the battlefield forward of the main defensive area. The force located there has the mission to delay and deceive the opponent as to the location and deployment of the main defensive elements.

MAIN DEFENSIVE AREA

The main defensive area may appear as belts or layers, but it is simply a defense in depth. The basic element of the main defensive area is the strongpoint. This is a platoon or company-sized fortified position established on terrain which is key to the defense and must be retained at all costs. Everything (that can be) is dug in and given overhead protection. Tank-heavy reserves are retained as a counterattack force.

COMBINED ARMS ARMY RESERVE

Approximately 8 to 10 kilometers behind the rear of the main defensive belt begins the second defensive belt. The Combined Arms Army's reserve is normally located in that belt.

THREAT AIR DEFENSE

The armor Threat has extensive antiaircraft capability which includes individual small arms, radar-controlled antiaircraft guns, surface-to-air missiles, tactical fighters, and armed helicopters.

EMPLOYMENT TACTICS AND TECHNIQUES

Air defense begins with the individual soldier. In motorized rifle companies, a portion of the command is always designated to deliver mass fire on attacking aircraft. Small arms weapons systems and machine-guns are employed with the individual soldier, motorized wheel and track vehicles, and tanks. Each combat soldier is trained in antiaircraft firing techniques and visual

identification of hostile aircraft. Emphasis is placed on constant visual reconnaissance for aircraft operating in nap-of-the-earth (NOE) flight modes followed by rapid engagement.

MOTORIZED RIFLE BATTALION SMALL ARMS

A typical Threat motorized rifle battalion, reinforced by one tank company, may have the following small arms available for use against aircraft.

EQUIPMENT	QUANTITY
Rifle, AKM 7.62-mm _____	346
LMG, PK 7.62-mm (BMP) _____	57
MG, COAX, 7.62-mm (BMP, tank) _____	45
HMG, 12.7-mm (tank) _____	13
HMG, 14.5-mm (BRDM) _____	1 or more

TANK BATTALION SMALL ARMS

A typical Threat tank battalion, reinforced by one motorized rifle company, may have the following small arms available for use against aircraft.

EQUIPMENT	QUANTITY
Rifle, AKM 7.62-mm _____	210
LMG, PK 7.62-mm (BMP) _____	19
MG, COAX, 7.62-mm (BMP, tank) _____	41
HMG, 12.7-mm (tank) _____	31
HMG, 14.5-mm (BRDM) _____	3 or more

DEPTH OF EMPLOYMENT

Air defense weapons are employed in depth with overlapping fields of fire and

continuous coverage from the surface to above 80,000 feet.

LOW ALTITUDE DEFENSE

Armor Threat forces have mobile, low altitude surface-to-air missiles (SAM) and conventional anti-aircraft guns.

The ZSU-23-4 anti-aircraft gun system.

The ZSU-57-2 anti-aircraft gun system.

The man-portable SA-7 (Grail).

The vehicle-mounted, radar-controlled SA-8 (Gecko).

The vehicle-mounted SA-9 (Gaskin) heat-seeking missile.

Each system is self-contained and capable of operating as a single fire unit.

MEDIUM/HIGH ALTITUDE DEFENSE

For medium altitude air defense, the maneuver elements are protected by SA-6 (Gainful) batteries. Larger formations are equipped with SA-4 (Ganef) units for high altitude defense.

The supply and command installations in the rear are protected by semimobile SA-2 (Guideline) and SA-3 (Goa) systems.

ESTABLISHMENT OF AIR DEFENSE

Threat air defense is established on the basis of providing zone or indirect cover for troops and objectives. Zone coverage is provided by SAM systems; point protection is provided by divisional and regimental light air defense weapons.

During the planning phase, the Threat division commander directs deployment of air defense weapons to support the mission. He also lays down coordination lines and establishes priorities and procedures for supply and technical support. The division

air defense commander then plans deployment of his assets based on the division commander's instructions, the air situation, communications, and control.

MOVEMENT

SAM units move as batteries, either integrated into march columns, or along separate routes. Towed anti-aircraft guns also move as batteries and are integrated into march columns. Mobile air defense automatic weapons and low altitude SAMs are integrated by individual piece into march columns to insure adequate air defense protection for the entire column.

Additionally, anti-aircraft machineguns mounted on vehicles engage low-flying aircraft. When a column makes long halts, air defense weapons disperse slightly from the column to provide 360° protection.

DIRECT SUPPORT ROLE

Air defense units are deployed in direct support of motorized rifle or tank regiments and also protect division headquarters, critical support activities, and the division rear.

ROLE AT REGIMENTAL LEVEL

Regimental air defense weapons are employed as individual weapons and are cross-attached to operate with supported elements.

These systems receive missions from the battery commander or from the air warning net. They are deployed forward. Their primary targets are close air support aircraft and attack helicopters.

A summary of air defense systems found in Threat divisions is provided in the following chart.

WEAPON SYSTEM	TOTAL PER DIVISION	
	TANK DIVISION	MOTORIZED RIFLE DIVISION
ZSU-23-4	16	16
SA-7 (Grail)	36	112
SA-8 (Gecko)	20	20
SA-9 (Gaskin)	16	16

WARSAW PACT THREAT AIRCRAFT

FIXED WING

The Threat possesses high-performance aircraft designed for air superiority and close air support. They have an all-weather capability. The fighters are equipped with a wide variety of weapons that can engage an airmobile task force (AMTF), including automatic cannons, rockets, missiles (air-to-air and air-to-surface), and bombs.

Threat aircraft can seek out and attack airmobile forces. Aircraft that may be encountered are the SU-7, SU-11, SU-17, SU-19, MIG-19, MIG-21, MIG-23, and MIG-25.

RADIO-ELECTRONIC COMBAT TACTICS

The armor Threat attempts to analyze his opponent's communication and noncommunication electromagnetic emitters. The Threat may attempt to destroy or disrupt at least 50 percent of these command, control, and weapon system communications.

That portion of the communications network left intact is used by target monitoring units to locate targets and/or to gather and analyze communications traffic.

Section III. THREAT DOCTRINE— ASIA

Experience in 20th century warfare has taught the Asian Threat that human wave attacks against superior firepower are ineffective. It is apparent to Threat forces that the only way to survive is to modernize their armed forces. Generally, they have begun to modernize along the lines of the Warsaw Pact nations, adopting the combined arms concept.

The Asian Threat has the capability of fighting over the entire spectrum of conventional and unconventional warfare (including a limited nuclear warfare capability).

ORGANIZATION

CORPS

The highest tactical command found within the Asian Threat structure is the corps. It has three to five divisions and various support units.

DIVISIONS AND REGIMENTS

Division-sized units within the force structure are predominately of a dismounted infantry type. A few mechanized infantry and armored divisions have been formed and

are used in assaults and exploitations. The main tactical unit of maneuver is the regiment, and it controls two to three line battalions.

TACTICAL PRINCIPLES

Firepower and maneuver are the basic means of achieving combat power in the offense.

Mobility is based on the Threat's ability to outmaneuver mechanized or other road-bound forces. This is achieved by the Threat infiltrating or advancing in unlikely sectors such as in mountainous terrain and using blocking forces and rugged terrain to hinder its opponent's mobility and firepower.

Flank security is maintained by reconnaissance and second-echelon units.

The Threat achieves mass by rapidly concentrating all available firepower and troops. This is normally done under the cover of darkness or during adverse weather.

Threat commanders are expected to achieve surprise by taking advantage of every opportunity to attack when and wherever their opponent is unprepared.

THREAT OFFENSE

Like the armored Threat, the Asian infantry Threat insists that the offensive is the only road to victory. Withdrawals are conducted only to lure the "enemy" deep within the Threat battle area to be destroyed by superior forces attacking from all sides.

The Threat will not normally mass a large number of troops when initiating offensive operations except when faced with extensive defensive positions. After breaching the initial defense line, the threat will exploit the penetration with tanks and infantry. This infantry force (supported by tanks where practicable) will defeat the defender's reserves that could influence the battle and isolate defending forces in the forward area.

THREAT DEFENSE

The Threat assumes a defensive posture in order to economize forces, gain time, and maintain occupied areas. The defense is only a temporary measure and will revert to the offense at the earliest practicable time.

EMPLOYMENT

The defensive posture is based on a solid defense by well-entrenched troops; natural and manmade obstacles placed parallel to the attacking force's avenue of advance; and surprise counterattacks with supporting artillery and armor. This type of defense is used to destroy the attacker and to control key terrain.

OPERATION OF DEFENSIVE ZONE

The defensive zone is normally divided into three areas, i.e., security, main defense, and reserve units. The use of trenches, fortifications, and obstacles is stressed by the Threat. Depending upon the situation and

time available, the unit prepares three trench lines, two in the main defense area and one in the reserve unit area. Reserve and adjacent units may be used to initiate counterattacks and to attack the attacking force's flanks, while frontline units are engaging the attacking forces in the main defense area. While the attacking force penetrates the first line of defense, the Threat will initiate counterattacks using troops deployed in the main defense area. If these counterattacks are unsuccessful, Threat forces will attempt to delay the attacker and decoy the forces into preplanned fire zones where all available firepower can be concentrated on them. Additional Threat counterattacks led by tanks, or infantry reinforced with heavy weapons, will be initiated.

THREAT AIR DEFENSE

Antiaircraft support is provided for Threat tactical operations by a variety of weapons. A significant part of the anti-aircraft capability found at corps level is provided by light and medium air defense artillery (ADA) systems. At division level, light machineguns, which may be utilized in a dual ground or anti-aircraft role, form the bulk of the available support.

The ZPU-2 or ZPU-4, 14.5-mm anti-aircraft heavy machinegun, is standard equipment in the regimental anti-aircraft battery. Both of these systems use a KPV 14.5-mm machinegun in twin or quad form that may be used in ground or close-in air defense roles.

ORGANIC WEAPONS

Two light automatic anti-aircraft gun systems are organic to the corps and the divisional anti-aircraft regiment. These weapons systems are either the M1939 single or twin-mounted 37-mm, or the S-60 (57-mm) gun. The recoil-operated M1939's closely resemble the 40-mm guns that were used by

the United States forces during World War II. Both the single and twin models use optical, on-carriage sights and may be fired semi-automatically or automatically.

MORE ANTI-AIRCRAFT GUNS AT CORPS LEVEL

Additional anti-aircraft guns that may be found in the corps are the 76-mm (M1939), 85-mm (M1944), 100-mm (KS-19), and 130-mm (KS-30).

THREAT AIRCRAFT

FIXED WING

The Asian Threat is also supported by a large air force. Many of the aircraft are obsolete, being primarily Korean War vintage. Support aircraft are of the type that once supported the armored Threat. The aircraft are principally air superiority fighters, although they do fly close air support and interdiction missions. Only a small percentage of the air force has an all-weather flight capability; these include the SU-7, MIG-15, MIG-17, MIG-19, and MIG-21.

HELICOPTERS

The Asian Threat has few helicopters and currently does not present a significant armed-helicopter threat.

RADIO-ELECTRONIC COMBAT

Threat infantry has a limited ability to employ electronic warfare support measures (ESM) such as intercept and direction finding, and electronic countermeasures (ECM) such as jamming and deception.

Section IV. THREAT AIR DEFENSE WEAPONRY DATA

This section lists Threat air defense weapons and weapons that can be used in an air defense (AD) role.

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TYPES OF AD WEAPONS

ASSAULT RIFLE



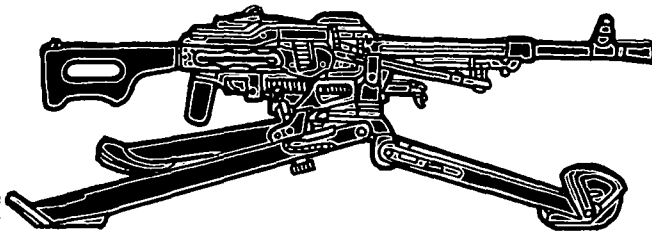
The soldier's assault rifle is an air defense weapon too. In a motorized rifle company, a portion of the unit is always designated to deliver mass fire at low-flying aircraft.

Caliber 7.62-mm.

Tactical range (antiaircraft) 400 meters.

Uses 30-round (detachable box) magazine.

PKS MACHINEGUN

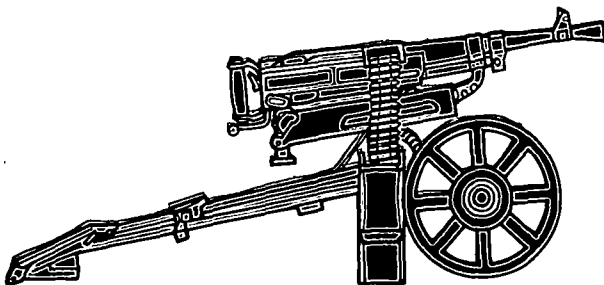


There are normally up to 20 PKS weapons in each motorized rifle company and up to 60 PKSs within a battalion. Virtually all machineguns employed by Threat forces are equipped with special mounts which allow PKSs to be used as anti-aircraft weapons.

Caliber 7.62-mm (not the same as AKM).

Tactical range (antiaircraft) 1,000 meters; belt-fed.

SGM MACHINEGUN

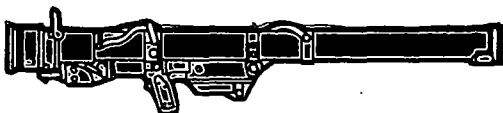


These machineguns are unique in that they are the only air-cooled machineguns with a mounted wheel and no shield. The SGM on the tripod resembles the US caliber .50 HMG and can be identified by the longitudinal cooling fins on the barrel. SG variants are the SGM for ground use, SGMT for tanks, and the SGMB for armored personnel carriers.

Caliber 7.62-mm (M1930D).

Effective range 1,000 meters.

SA-7 GRAIL



This missile system has passive infrared homing guidance (heat-seeking) and a high explosive (HE) warhead. A solid fuel booster and sustainer propel it to a maximum slant range of approximately 3.5 kilometers, and it can attain an altitude of 10,000 feet.

Normally three SA-7s deploy in a company sector and up to 10 SA-7s throughout a battalion sector. The SA-7 may be used down to platoon level.

TYPES OF AD WEAPONS, CONTINUED

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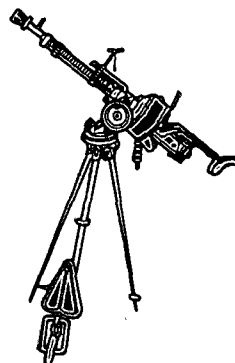
DshKM MACHINEGUN

The DshKM is used in both a ground role and as an anti-aircraft weapon. It has radial cooling fins on the barrel and a wheeled mount and a shield for use in the ground role.

Caliber 12.7-mm.

Tactical range (anti-aircraft) 1,000 meters; belt-fed.

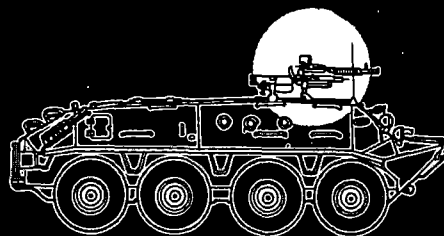
NOTE: DshKM can be mounted on tanks.



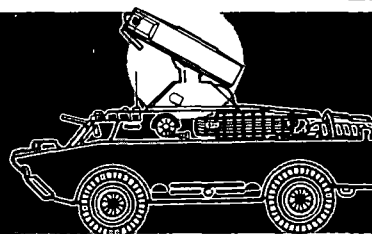
Most combat vehicles are equipped with weapons capable of providing air defense fires; for example, the KPVT is mounted on the BTR-60PB. The KPVT is also found on the T-10 heavy tank, the OT-62 and -64 armored personnel carriers (APC), and BRDM-2; it is typical of Threat heavy machineguns. There are 10 BTR-60PBs in the motorized rifle company and 32 in the battalion (in those units that do not have the BMP vehicle).

Caliber 14.5-mm heavy machinegun.

Tactical range (anti-aircraft) 1,400 meters.

KPVT MACHINEGUN

This system is transported on a modified BRDM-2 amphibious armored vehicle which carries a crew of four. The SA-9 slant range is 7 kilometers. The missile has an infrared seeker, and an HE warhead and probably is powered by a solid propellant. Four missile canisters (each with one missile) are carried on the launcher turret. The SA-9 is utilized in conjunction with ZSU-23-4.

SA-9 GASKIN

The ZPU-2 is a twin-barrel anti-aircraft heavy machinegun.

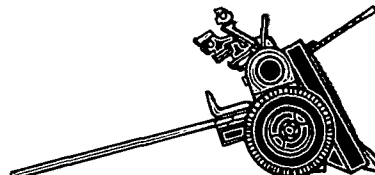
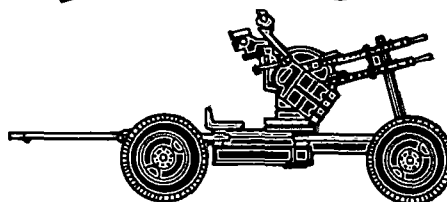
The ZPU-4 is a four-barrel version of the ZPU-2 and is mounted on a four-wheel carriage.

Caliber 14.5-mm.

Optical fire control.

Tactical range 1,400 meters.

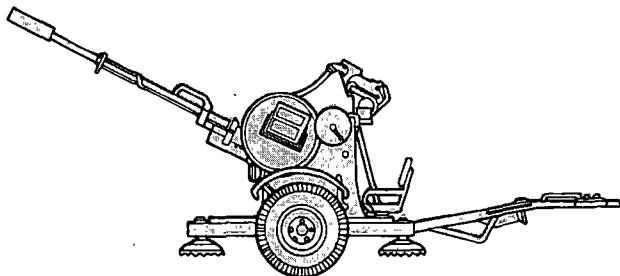
Currently being replaced in Europe by more modern equipment.

ZPU-2**ZPU-4**

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TYPES OF AD WEAPONS, CONTINUED

ZU-23



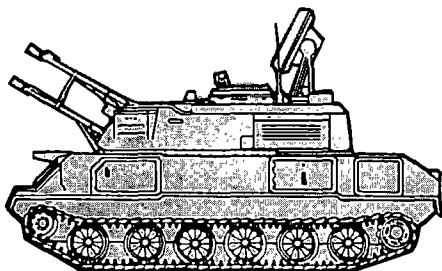
Threat forces also employ weapon systems specifically designed for air defense. The first echelon of this air defense umbrella may include the ZPU-4 or the ZU-23. There are six ZPU-4s and four ZU-23s in a motorized rifle regiment. They are being replaced by the SA-9 Gaskin and the ZSU-23-4, respectively.

Caliber 23-mm, twin barrel, carriage-mounted automatic cannons.

Tactical antiaircraft range 2,500 meters.

Ground combat range 1,000 meters.

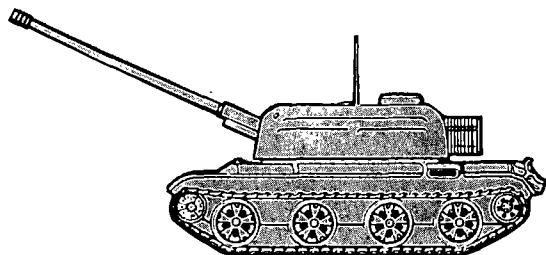
ZSU-23-4



This automatic anti-aircraft system has four 23-mm cannons. The turret traverses 360° and with the "gundish" radar has a tactical antiaircraft range of 3,000 meters. Using optical sights, the tactical antiaircraft range is 2,500 meters.

The ZSU-23-4 has a ground combat range of 1,000 meters. The weapon is mounted on a modified PT-76 armored vehicle chassis, carries a four-man crew, and can fire on the move at speeds up to 25 kilometers per hour (kmph). This weapon is employed in a four-gun battery in conjunction with four SA-9s.

ZSU-57-2



This anti-aircraft system has two 57-mm automatic cannons that traverse 360° and has a tactical antiaircraft range of 4,000 meters.

The ZSU-57-2 is mounted on a modified T-54 tank chassis and carries a six-man crew. Fire control is optically directed.

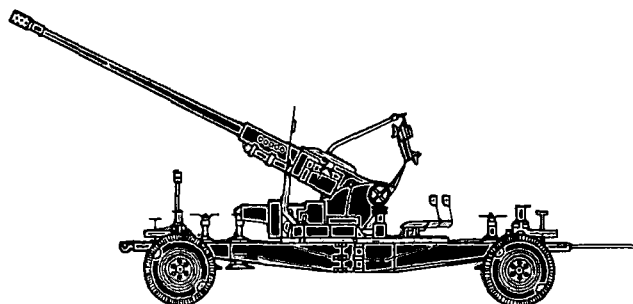
It may be found at regimental level and in division rear areas. In a tank regiment, there may be six ZSU-57-2s assigned. In a motorized rifle unit, they are often deployed forward with maneuver units. The ZSU-57-2 is being replaced by more modern equipment in priority units.

TYPES OF AD WEAPONS, CONTINUED

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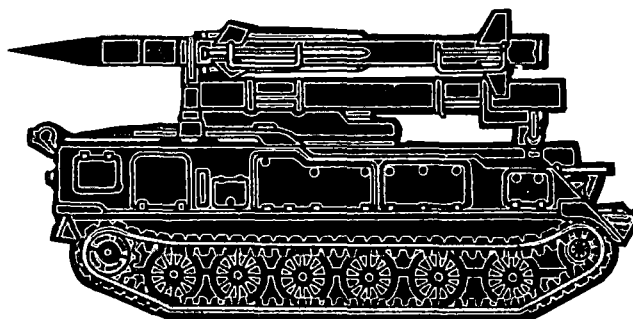
This automatic anti-aircraft system has one 57-mm cannon. It traverses 360° and, when directed by the off-carriage "flap wheel" radar, has a tactical anti-aircraft range of 6,000 meters. The anti-aircraft range with on-carriage optical sights is 4,000 meters.

There are 24 S-60s in the division anti-aircraft regiment. They are used to protect critical installations such as command posts, supply installations, or main supply routes. S-60s are usually deployed in battery formations in and around a defended position. They are being replaced by more modern equipment in Europe.

S-60

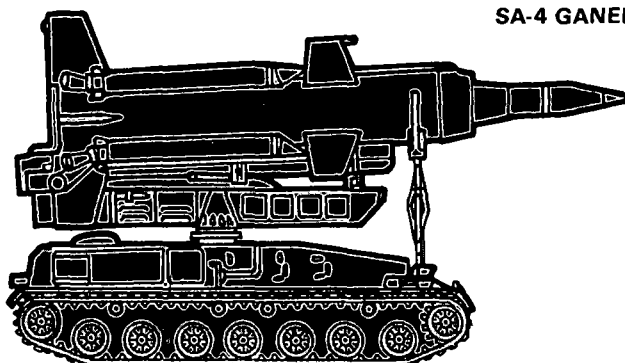
This missile has a slant range of 30-35 kilometers. It is powered by an integral solid rocket/ramjet system and is command guided by the "straight flush" fire control radar. The missile carries an HE fragmentation warhead and has an altitude range of 300 to 33,000 feet.

The SA-6 missile system is designed to counter high-performance aircraft flying at low altitudes. It is also capable of engaging aircraft flying at medium altitudes. It is being replaced at army level by more modern equipment.

SA-6

This missile has a slant range of 70 kilometers and has command guidance to an altitude of 80,000 feet. The missile is powered by four solid fuel boosters with ramjet sustainers. It carries an HE proximity-fuzed warhead.

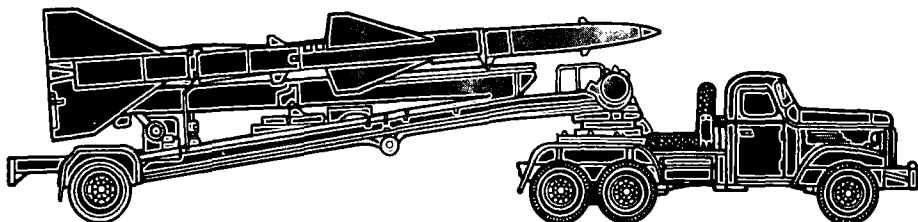
Although normally deployed in army rear areas, SA-4 mobility allows deployment forward. It is being replaced at army level by more modern equipment.

SA-4 GANEF

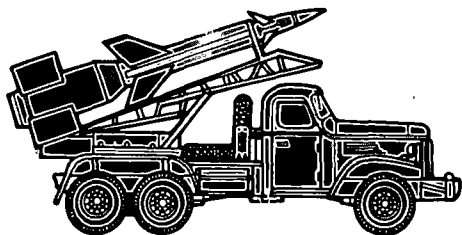
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TYPES OF AD WEAPONS, CONTINUED**SA-2 GUIDELINE**

The SA-2 (CSA-1 in Asia) missile has a slant range of 45 kilometers. It has two stages: a solid fuel booster and liquid fuel rocket sustainer that boosts its 130-kilogram HE warhead to a maximum altitude of 80,000 feet. The typical SA-2 site consists of six launchers arranged in star-like configuration around "fan song" radar equipment.

**SA-3 GOA**

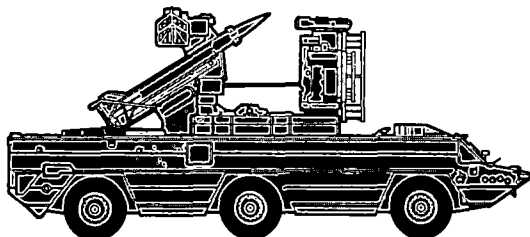
This missile is (probably) command guided. It has an effective range of 22 kilometers. Powered by a two-stage solid fuel booster and a solid fuel sustainer, it carries an HE proximity-fuzed warhead to altitudes above 40,000 feet.



It is deployed in army rear areas with the SA-2. As a truck transportable missile system, the SA-3 is less mobile than the SA-4 and SA-6. It is normally employed in semifixed locations to cover large areas. The SA-2 and SA-3 are being replaced at army level by more modern equipment.

SA-8 GECKO

The SA-8 missile, mounted on an amphibious vehicle, operates by command guidance and is effective at altitudes of 150 to 20,000 feet. It is self-contained with acquisition, tracking, and (two) missile guidance radars. Four missiles are carried on an integrated mount. The system contains an electro-optical tracker (probably television). With a slant range of 15 kilometers, the mobile SA-8 provides close support to armored and mechanized forces.



This system is designed to partially replace the S-60 and ZU-57-2 and will replace the SA-2, SA-4, and SA-6 at army level.

TYPES OF AD WEAPONS, CONTINUED

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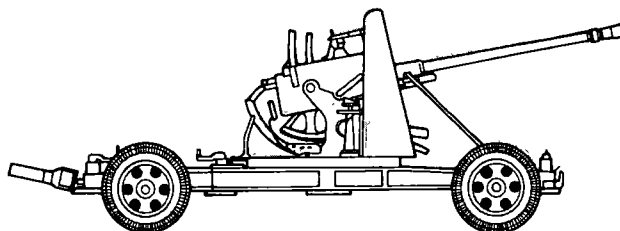
In addition to the Threat weapons already described, there are several other anti-aircraft weapons that may be encountered. Most of these weapons are considered obsolete by modern

standards and are employed with the lower priority units of Threat satellite countries. They are representative of numerous system variations.

Caliber 37-mm, automatic anti-aircraft gun.

M1939

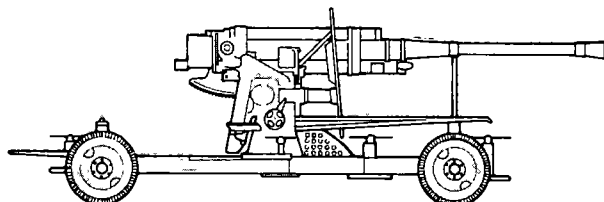
Tactical range 3,000 meters.



Caliber 85-mm, semiautomatic anti-aircraft gun, radar controlled.

KS-12

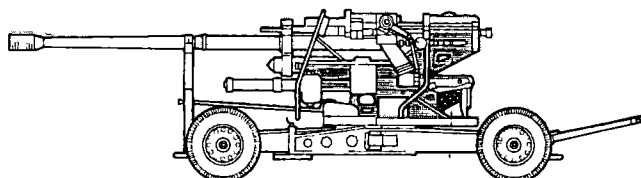
Tactical range 13,720 meters.



Caliber 100-mm, semiautomatic anti-aircraft gun, radar controlled.

KS-30

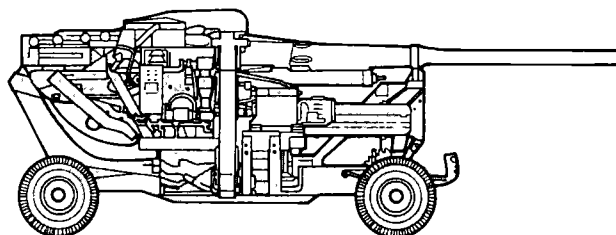
Tactical range 13,700 meters.



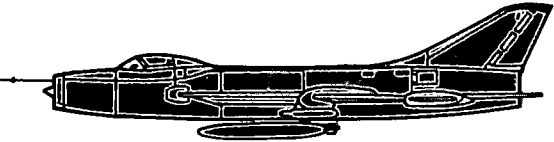
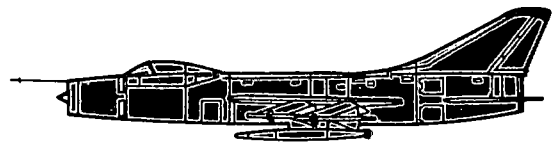
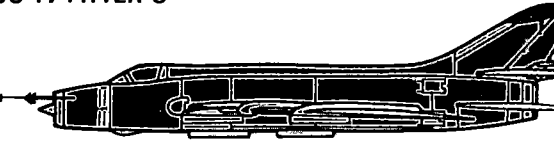
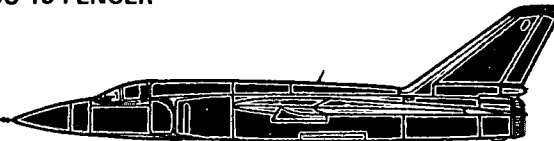
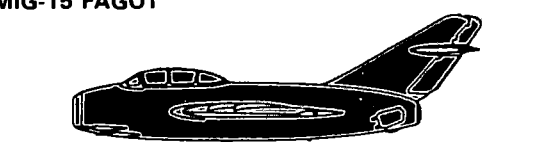
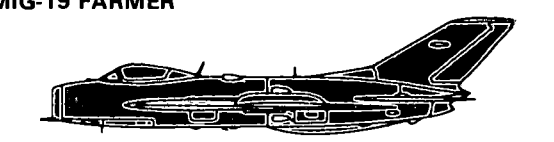
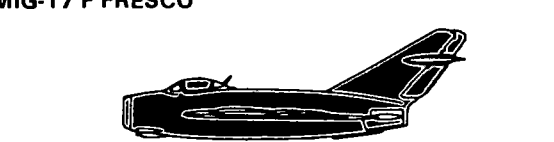
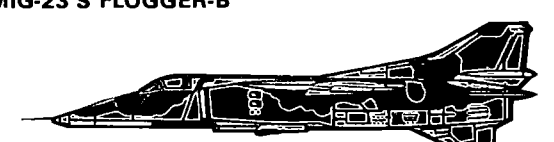
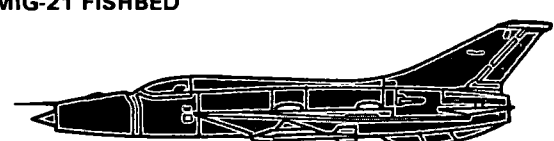
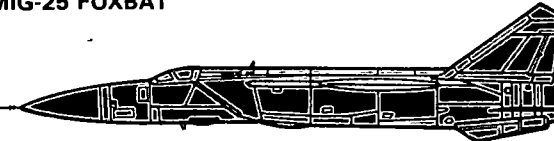
Caliber 130-mm, semiautomatic anti-aircraft gun, radar controlled.

KS-19

Tactical range 8,382 meters.



Section V. THREAT AIRCRAFT

(not to scale)		FIXED WING	
SU-7B FITTER-A		SU-11 FISHPOT	
SU-17 FITTER-C		SU-19 FENCER	
MIG-15 FAGOT		MIG-19 FARMER	
MIG-17 F FRESCO		MIG-23 S FLOGGER-B	
MIG-21 FISHBED		MIG-25 FOXBAT	

PERFORMANCE SUMMARY										
	SU-78	SU-11	SU-17	SU-19	MIG-15	MIG-17F	MIG-19	MIG-21	MIG-23 S	MIG-25
SPEED (Mach [M], Knots [Kn])	460 kns	2.3 M	675 kns	708 kns	490 kns*	608 kns	650 kns	650 kns	708 kns	3 (+) M
COMBAT RADIUS (Km)*	450	1200	960	400	500	500-700	685	650	1000	1000

*with external fuel tanks

Fighters are designed for air-to-air combat or close air support and do not have the observation capability of reconnaissance aircraft. Fighters operate in pairs, and after a

target has been detected they attack in rapid succession. Radar may be used to vector tactical fighters into attack position.

HELICOPTERS

(not to scale)

Length — 16.8m

Max Speed — 100 kts

Cruising Speed — 95 kts

Range — 200 km

Crew — 3

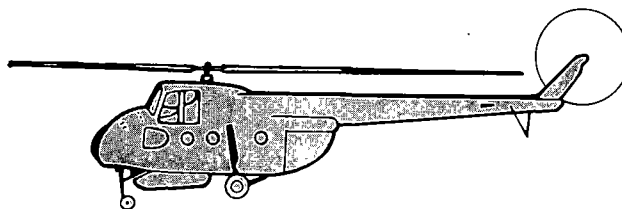
Troops — 14

Armament:

One 12.7-mm machinegun.

Four 16-shot 57-mm rocket pods or antitank guided missiles (ATGM)

NOTE: The MI-4 is being replaced by the MI-8

MI-4 HOUND

Length — 33.2m

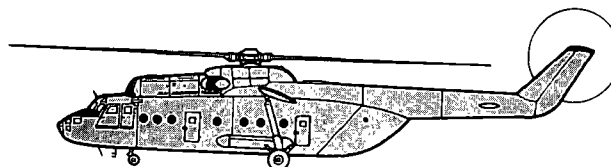
Max Speed — 162 kts

Cruising Speed — 135 kts

Range — 620 km

Crew — 5

Troops — 65-70

MI-6 HOOK

Length — 18.2m

Max Speed — 135 kts

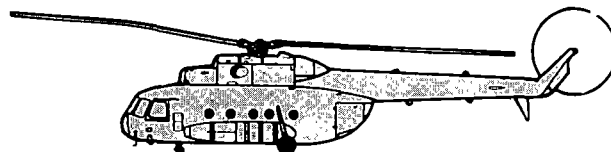
Cruising Speed — 122 kts

Range — 425 km

Crew — 2

Troops — 28

Armament — 57-mm rockets

MI-8 HIP

Length — 19.3m

Max Speed — 168 kts

Cruising Speed — 132 kts

Range — 260 km

Crew — 4 (HIND-A)

2 (HIND-D)

Troops — 8-12

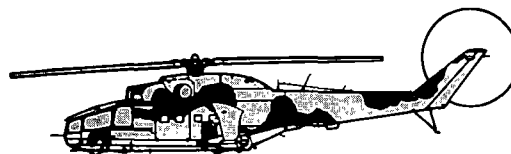
Armament:

One mg (12/7-mm).

Four rocket pods (57-mm)

32 rockets and 4

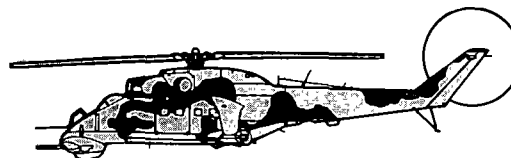
ATGMs (Sagger/Swatter).

MI-24 HIND-A

Data shown above for the HIND A is the same for the HIND D except the HIND D mounts a four-barrel 12.7-mm Gatling-type machinegun as opposed to a single barrel. The HIND D turret can also accommodate a 23-mm cannon.

MI-24 HIND-D

NOTE: The HIND modification, which incorporates two tandem bubble canopies and the chin-mounted gun turret, makes it easier to determine if a particular HIND is an A or D model.



Threat helicopters pose a threat to airmobile forces. They are armed with a

variety of weapons and can engage helicopters or ground forces.

Section VI. THREAT AIRCRAFT AND AD SUMMARY

EUROPEAN AND ASIAN EMPLOYMENT			ASIA	EUROPE
AIRCRAFT	FIXED WING	SU-7	X	X
		SU-11		X
		SU-17		X
		SU-19		X
		MIG-15	X	
		MIG-17	X	
		MIG-19	X	X
		MIG-21	X	X
		MIG-23		X
		MIG-25		X
	ROTARY WING	MI-4	X	X
		MI-6		X
		MI-8	X	X
		MI-24		X
MISSILES	SURFACE-TO-AIR	SA-2	X	X
		SA-3		X
		SA-4		X
		SA-6		X
		SA-7	X	X
		SA-8		X
		SA-9		X
ANTIAIRCRAFT GUNS	HIGH/LOW ALTITUDE DEFENSE	KS-12	X	
		KS-19	X	
		KS-30	X	
		37-mm (M1939)	X	
		76-mm (M1938)	X	
		ZPU-4	X	
		ZPU-2	X	
		ZU-23		X
		ZSU-23-4		X
		ZSU-57-2		X
		S-60	X	X
MACHINEGUNS	LOW ALTITUDE DEFENSE	PKS (7.62-mm)	X	X
		SGM Machinegun (7.62 mm)	X	
		KPVT (14.5-mm)	X	X
		DshKM (12.7-mm)	X	X
		Assault Rifle (7.62-mm)	X	X

CHAPTER 3

ORGANIZING AN AIRMOBILE TASK FORCE

Section I. GENERAL

The formation of an airmobile task force (AMTF) is directed by division (or higher) headquarters because that echelon controls the aviation assets.

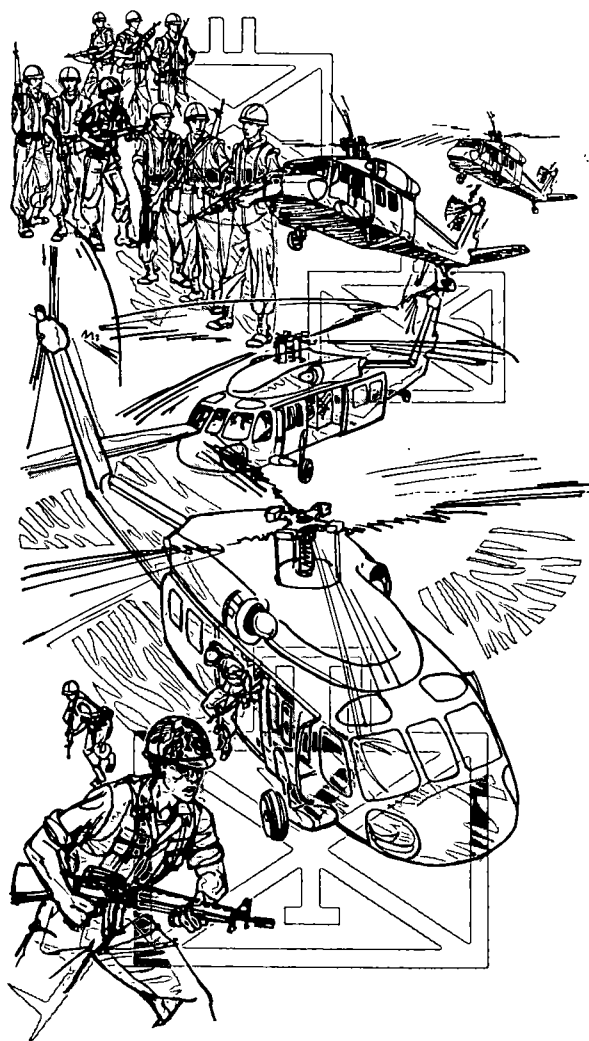
The task force (TF) is designed for a specific mission and consists of an infantry battalion and an aviation company.

When an infantry *company* combines with aviation elements, they form an airmobile *team* (AMTM).

NOTE: Mechanized (mech) infantry units are not frequently employed in airmobile operations. However, there will be situations where small-scale airmobile operations may be the decisive form of combat. Typical operations that would be conducted by mech forces are river-crossing operations, seizure of key terrain, raids, and rear area combat operations.

In addition to infantry and aviation units, an AMTF may contain nonorganic combat support and combat service support units to include elements from other military services or nations (app H).

An AMTF exists as long as an aviation unit remains under the control of the infantry unit commander. When that relationship ends, the AMTF ceases.



Section II. COMMAND RELATIONSHIPS AND RESPONSIBILITIES

COMMAND RELATIONSHIPS

When establishing an AMTF, the directing headquarters defines authority and responsibility by designating command relationships.

Overall control goes to the infantry commander who directs the operation and provides and/or coordinates required support. Battalion is the lowest echelon that has adequate personnel resources to plan and control an airmobile operation.

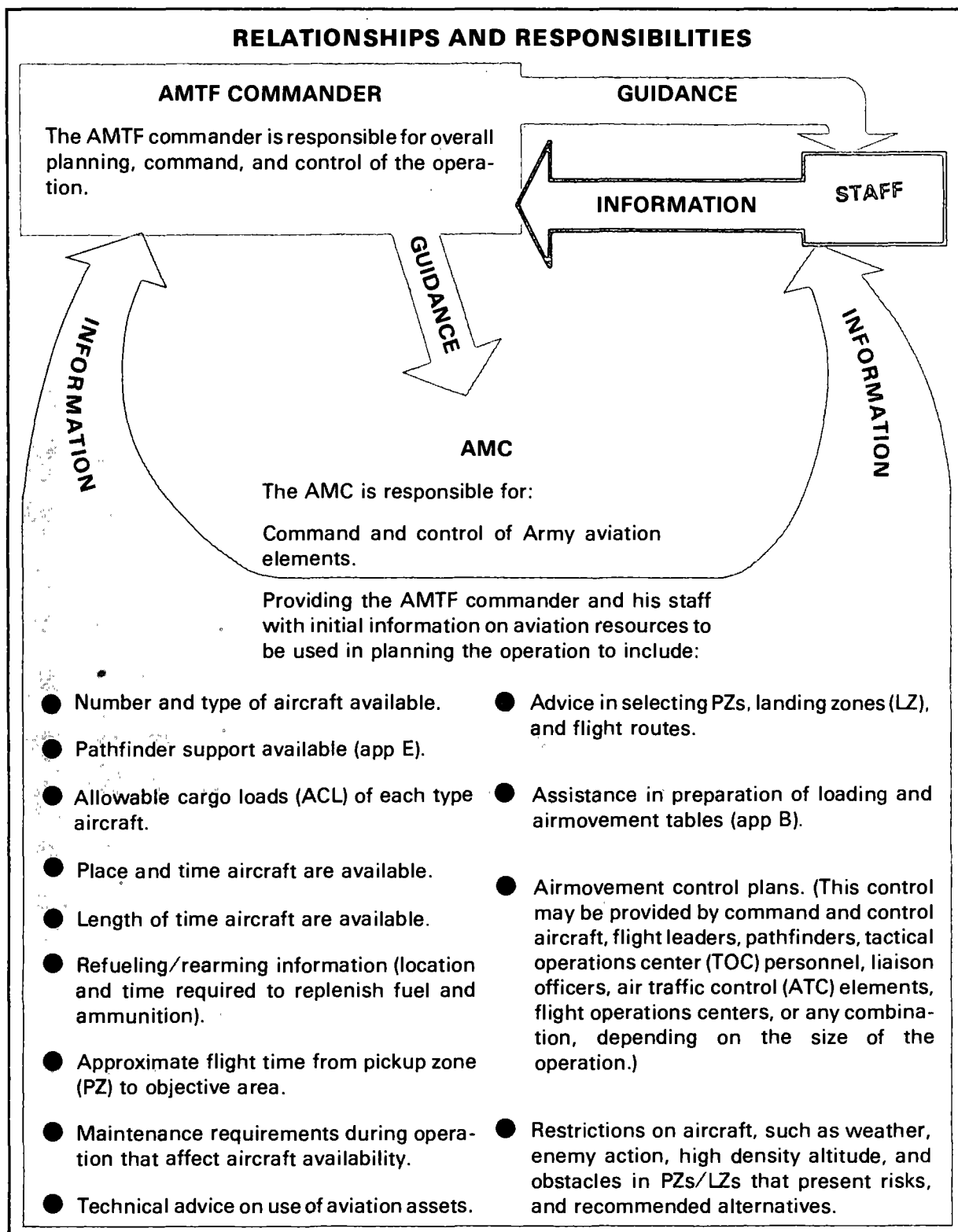
AMTF COMMANDER

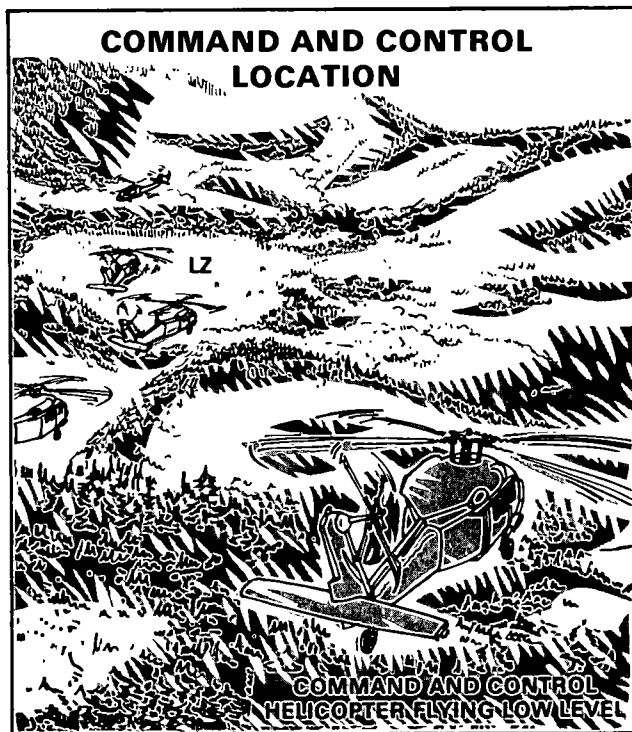
The AMTF commander controls units *assigned, attached, or placed under his operational control (OPCON)*. Other units in *direct support (DS)* or *general support (GS)* remain under the command or OPCON of a supporting commander. An aviation unit is usually under the OPCON of the infantry commander. In airmobile operations involving US Army and allied forces, the command relationships between forces are specified in the higher headquarter's *operation order (OPORD)*.

AIR MISSION COMMANDER

Regardless of the command relationship, operations of aviation elements providing AMTF support are controlled by the commander of the largest supporting aviation unit. He is designated *air mission commander (AMC)*.

The AMC is subordinate to the AMTF commander. The AMC serves as special staff officer and technical advisor (for aviation employment) to the AMTF commander. Other forces in an airmobile operation have command relationships (attached, OPCON, DS, or GS) specified in their orders.





OTHER COMMANDERS

Artillery, engineer, and other commanders perform the same tasks for the AMTF as they do for other infantry units in tactical operations. They are normally placed OPCON to the AMTF commander because of the decentralized nature of an airmobile operation. They may, however, be in DS, GS, or general support reinforcing (GSR).

COMMAND AND CONTROL

The AMTF commander may control the operation from a command and control helicopter or from a ground position. However, due to the air defense artillery (ADA) threat, he will not be able to fly at high altitudes. Rather, he uses the aircraft primarily as a means of mobility between units.

Command and control may be provided while terrain flying either within the flight as it moves to the objective area or while flying nearby. Since only segments of the battlefield can be seen, the AMTF commander relies heavily on reports from subordinates.

UNIT LEADERS

Subordinate unit leaders must have detailed knowledge of the commander's concept and be able to make tactical judgments should the need arise.

COMPOSITION OF COMMAND GROUP

The command group usually consists of the AMTF commander, AMTF S3, AMC, fire support officer (FSO), and forward air controller (FAC). The group may be in one or more aircraft and augmented with radio-telephone operators (RATELO), depending on the aircraft ACLs. If the airmobile force remains in the objective area for extended periods, the command group may be augmented with personnel and equipment (e.g., vehicles, radios) in a followup echelon.

Section III. ORGANIZATIONAL CONSIDERATIONS FOR INFANTRY UNITS

All type infantry *combat units* can conduct airmobile operations. However, there are organizational considerations unique to each type infantry battalion (mechanized, infantry, airborne, air assault, and ranger).

TRAINING AND COORDINATION

A primary consideration is that infantry units (except air assault units) do not habitually conduct airmobile operations. They require time to train and develop coordination between ground and aviation units (app F).

When possible, the same aviation unit habitually supports the same ground unit to develop compatible procedures. Infantry units should have airmobile standing operating procedures (SOP), and exercise them regularly, to reduce the time required for planning and coordination (app C).

MECHANIZED INFANTRY

Mechanized infantry battalions within armored and mechanized infantry divisions have less opportunity to train in airmobile operations because the divisions do not have sufficient organic helicopters for airmobile operations. Thus, ground and aviation units will probably be unfamiliar with each other's procedures.

There is a reduction in the mechanized infantry unit's combat power because they cannot transport their carriers which provide firepower, protection, and mobility. Additionally, tube launched, optically tracked, wire-guided (TOW) missile and mortar sections, and scouts, will be without ground transportation (since they are transported by tracked vehicle).

LIMITATIONS WITH FIELD ARTILLERY

If field artillery (FA) assets are to accompany the force, they come from outside the division because armored and mecha-

nized division resources are self-propelled, and not helicopter transportable.

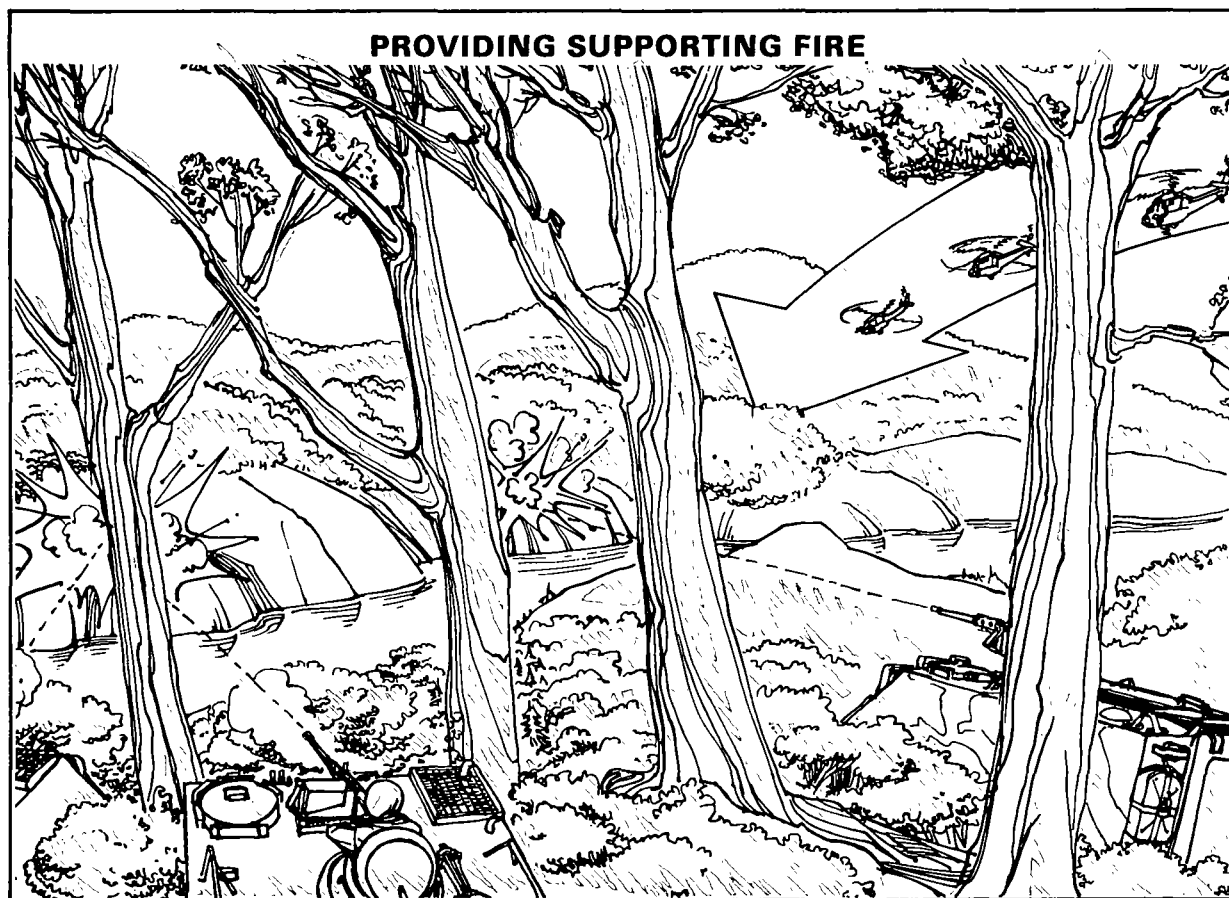
OPTIONS FOR ARMORED VEHICLES

If mechanized infantry units participate in airmobile operations, disposition of armored vehicles is planned. Vehicles can be:

Attached (for movement) to an assaulting ground element (linkup force).

Left in an assembly area until the assaulting element returns.

*Positioned to provide **support fires** for adjacent units or for the airmobile force if the operation covers a short distance. For example, during a river crossing the armored vehicles fire from the near bank as the infantry airmobile operation secures the far bank.*



INFANTRY AND AIRBORNE INFANTRY

These units are easily adapted to air-mobile operations because most of their equipment can be transported by helicopters. They are organized and equipped much like airmobile units (app D). *However, they are not dedicated to airmobile missions.* When given an airmobile mission, unit commanders consider, among other tactical aspects, the following:

LIMITATIONS AND CONSIDERATIONS

Ground mobility is limited once the unit is inserted unless vehicles are provided.

Communication range is limited to that of portable radios unless vehicle-mounted radios are provided.

Range of the scout platoon is limited unless its vehicles are lifted into the objective area.

Transport is required to position 107-mm or 81-mm mortars and TOW launchers.

If FA accompanies the AMTF into the objective area, transport is required for repositioning.

If vehicles are required for battalion combat support, command and control, and combat support elements, the number of aircraft sorties is increased accordingly.

Air lines of communication must be planned to sustain operations.



AIR ASSAULT INFANTRY

These units are specifically organized, trained, and equipped to conduct airmobile operations.

LIMITED GROUND MOBILITY

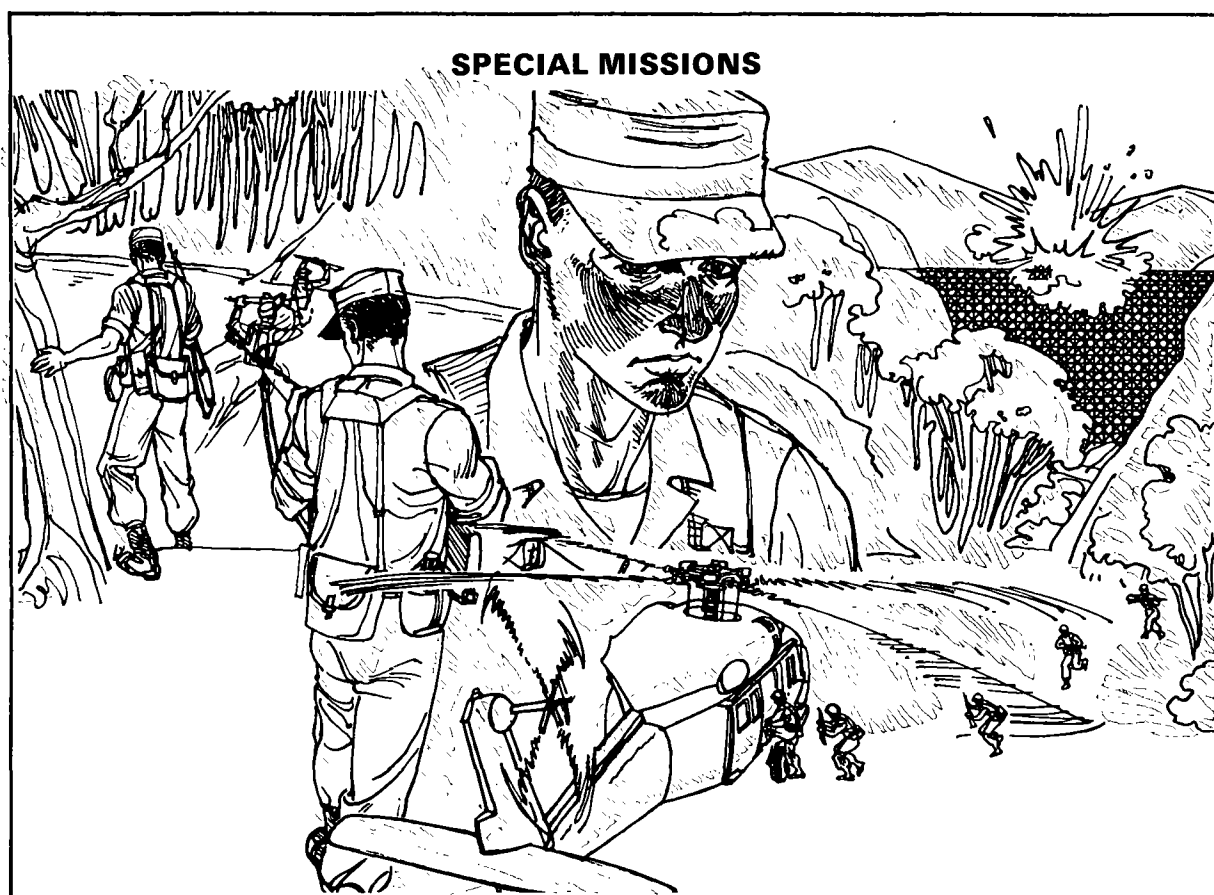
They differ from other infantry battalions as follows:

- They rely on air lines of communication to sustain operations.
- Ground mobility in organic vehicles is limited. The airmobile battalion is about 3 percent mobile using its organic wheeled vehicles. (The infantry battalion is about 60 percent mobile.)
- Long-range communication capability is less; e.g., an infantry battalion has 42 radios with a range of 12 kilometers or more, while the air assault battalion has five radios with that range.
- Battalion mortar platoon is equipped with the 81-mm mortar (not the 107-mm).
- Scout platoon does not have vehicles.
- FA accompanying the airmobile force must be provided helicopter transport for positioning.



RANGER INFANTRY

This is the smallest and lightest (equipped) of all infantry organizations. All its equipment is transportable by helicopters, thus rangers are very adaptable to airmobile operations. Due to training, the battalion is suited for airmobile raids which capitalize on stealth, swift and violent execution, and extraction. Based on the mission and enemy situation, ranger units evaluate the need for outside combat support and combat service support resources. (The battalion possesses medium and light antitank (AT) weapons and company mortars.)



Section IV. TASK ORGANIZATION—AVIATION, COMBAT SUPPORT, AND COMBAT SERVICE SUPPORT UNITS

Commanders at *each echelon* insure that combat units have sufficient resources (combat support and combat service support) to accomplish the mission. This is facilitated by task organizing. To task organize, the AMTF commander considers the capabilities and limitations of supporting units available for allocation.

GUIDELINES FOR TASK ORGANIZING

Insure that the task organization supports the tactical plan; the force placed at a critical point must be strong enough and have the required capability to do the job. For example, attach engineers to the first landing unit to improve the LZ.

SUBORDINATE ELEMENTS

Allocate subordinate elements as complete units: maneuver platoons, TOW sections, helicopter platoons.

Allow time for elements to link up with, and be incorporated into, the company tactical plan.

ORGANIZATION AND REORGANIZATION

Anticipate future requirements (organize so minimum changes are required).

Regardless of the task organization at a given time, the TF commander reorganizes when the combat situation dictates.

QUESTIONS TO CONSIDER

Can the support provided by combat, combat support, combat service support, and aviation units within subordinate elements be improved by changing the task organization?

Is the task force, or one of the companies, about to face a different situation requiring a different balance of components? For example, does a unit need more TOWs to meet a larger than anticipated armor threat?

Can a team breaking contact or attacking a position be helped by sending attack helicopter units, additional TOW sections, or infantry?

Can a team be helped by redirecting the efforts of combines arms assets (mortars, artillery, tactical air [TACAIR], air defense weapons, helicopters, combat service support)?

Can all elements of the TF be inserted simultaneously and is this a wise move? When the TF is inserted by companies, the battalion may decentralize control of combat support elements to provide lead elements with the resources required to face the threat. This organization may last only until insertion of the entire task force. When insertion is complete, control is centralized; e.g., a Redeye team is attached to a rifle company for the insertion.

AVIATION SUPPORT

Aviation units that are part of the AMTF may be either combat, combat support, or combat service support units.

The effective employment of combat support is critical to the unit's ability to fight the enemy and win.

ARMY HELICOPTERS

Although different aviation units may be equipped with identical aircraft, unit roles and missions can differ widely. An aircraft's primary role is determined by the type unit to which it is assigned. There are four types of helicopters that the AMTF may employ:

OBSERVATION HELICOPTER (OH)

OHs may be used by the AMTF to provide:

Command and control. Due to limited number of radios, and the slower airspeed of the OH as compared to the UH-60A (Blackhawk), the OH is not suited for battalion or larger airmobile operations. It is suited, however, for direct liaison visits by the AMTF commander to subordinate units.

Aerial observation and reconnaissance. This is provided by air cavalry units.

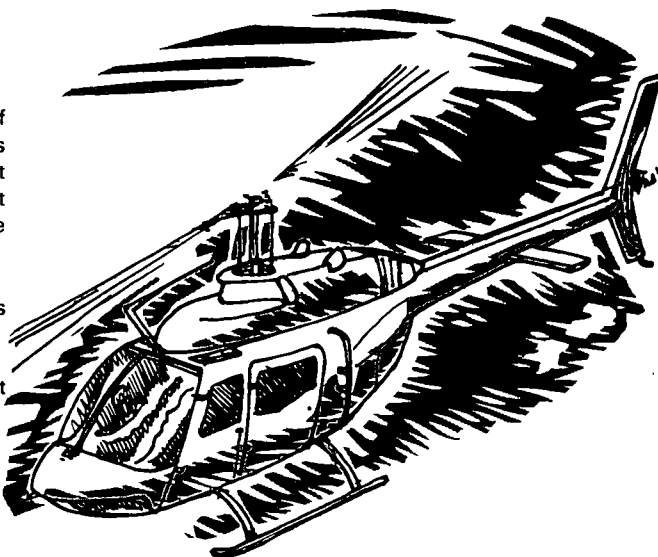
Aerial target acquisition. This is provided by aircraft from the aviation general support company.

When rigged with special equipment, OHs may:

Lay wire.

Provide illumination.

Conduct radiological survey.



OHs are organic to the division combat aviation battalion, air cavalry units, and attack helicopter units (company or battalion).

UTILITY HELICOPTER (UH)

UH 60A



UHs may be used by the AMTF to provide:

Troop transport. UHs are the primary aircraft used in airmobile operations. In this role, they are referred to as "assault helicopters" or "lift helicopters."

Command and control. In this role the aircraft is used to control airmobile operations. Its internal communications console can provide up to four frequency modulated (FM) radios to control the operation.

Mobility. The UH moves combat support and combat service support assets in airmobile operations.

Resupply. The UH is the primary aircraft for resupply of combat units.

UH 1H



When rigged with special equipment, UHs:

Provide aeromedical evacuation (medevac; air ambulance).

Conduct radiological survey.

Provide illumination.

Lay wire.

Dispense scatterable mines.

Dispense smoke.

The utility helicopter is the most versatile of all helicopters. It is available in almost every unit possessing aircraft because it can perform such a wide variety of tasks.

The AMTF receives its UH support primarily from the assault helicopter companies of the combat aviation battalion or the assault helicopter battalion.

CARGO HELICOPTER (CH)

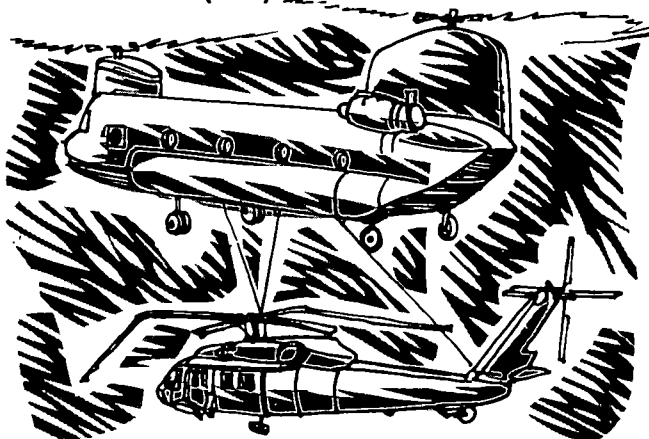
CHs may be used by the AMTF for:

Transport. Though seldom used in initial assaults due to lack of maneuverability, CHs move troops and/or equipment to forward PZs where UHs displace them to assault areas.

Mobility. CHs are often used to move combat support and combat service support units.

Recovery. CHs are the primary means to recover downed aircraft.

CHs are provided from corps assets.



ATTACK HELICOPTER (AH)

Attack helicopter units are assigned to cavalry regiments, divisions, and corps. They are used to increase AMTF combat power. These units may be used:

To provide primary overwatch for operations beyond FA range.

To destroy point targets (attack helicopter units can strike enemy forces from the flank and rear, maneuvers often beyond ground forces' ability due to terrain or enemy situation).

To overwatch and provide security for utility or scout helicopters.

To suppress air defense weapons.

Attack helicopter units are task organized into teams and are employed under company control (under AMTF OPCON).

Their armament includes:

TOW missiles

20-mm cannons (new turret).

2.75-inch folding-fin aerial rockets.

40-mm grenade launcher (old turret).

7.62-mm machineguns (old turret).



Attack helicopter organizations vary in size from company to battalion, but they can be task-organized consistent with the mission of most AMTF operations and are employed (normally) no lower than company level.

FIRE SUPPORT

The AMTF commander has a significant amount of fire support. He has FA and mortars and may have tactical aircraft and naval gunfire. The commander's planner, coordinator, and controller of all indirect fire support is the FSO.

FIRE SUPPORT COORDINATOR

The FSO is provided by the brigade's DS artillery battalion. He is the fire support coordinator (FSCOORD) for the AMTF. The FSO normally accompanies the TF commander. He assists in integrating fire support systems into the ground tactical plan to complement the scheme of maneuver.

FIRE SUPPORT TEAM

Each company has a fire support team (FIST). The team works with the company commander to plan, call for, and adjust fires for the company. The FIST chief is the company FSCOORD.

FIRE SUPPORT EMPLOYMENT

The AMTF commander employs fire support resources to:

Neutralize or suppress enemy weapon systems (particularly air defense).

Destroy enemy infantry.

Restrict enemy reinforcement.

Provide illumination.

Emplace mines.

Destroy point targets (with precision munitions).

FIELD ARTILLERY

FA support for the AMTF is provided by the brigade's DS FA battalion. Additional FA support may be available to the AMTF. The artillery may be placed in one of its

traditional support roles or may be attached to accompany the TF into the objective area.

STANDARD FA/TAC MISSIONS

1 DS

DS is the most demanding mission. It directs the artillery unit's fires almost exclusively to the supported maneuver element. A battalion with a DS mission:

Furnishes close and continuous fire support to a single maneuver element, normally a brigade.

Is habitually DS to the same maneuver element to facilitate combined arms teamwork.

Is commanded by the DS artillery unit commander.

NOTE: On rare occasions, the DS mission may be extended by dedicating the fires of a battery to a lead company (dedicated battery).

another FA unit that cannot provide sufficient fires to support the force. For example, one or more FA battalions can reinforce the fires of a DS FA battalion. A unit with a reinforcing mission adds to the close and continuous fires of the reinforced unit, and its fires are controlled by the DS FA unit commander.

3 GSR

GSR units support the entire force and augment the fires of designated force artillery units when not providing GS fires. GSR units are controlled by the force FA headquarters and are not dedicated to subordinate elements of the force.

2 REINFORCING

Reinforcing is a tactical mission where one FA unit augments the fires of

4 GS

GS units also support the entire force. They remain under the control of the force FA headquarters and are not dedicated to any subordinate element of the force.

There is a key question that the FSO answers for the AMTF: "Is there sufficient FA support in range of the objective area?" When FA can support the AMTF from a secure area (without displacement forward of the forward edge of the battle area [FEBA]), it does so. If such support is not feasible, the FSO determines if other fire support is sufficient to accomplish the mission. If other support is not sufficient, it may be necessary to displace the FA into the objective area.

When the decision to displace is made, consider that:

Displacement is accomplished by echelon to prevent temporary loss of FA support.

FA requires security in the objective area.

CHs are required to displace the FA unit.

Ammunition resupply is made by air.

The FA depends on helicopter assets for mobility unless prime movers are lifted into the objective area.

MORTARS

The battalion mortars are the most responsive indirect fire support organic to the AMTF. They provide immediate fires for the TF and are directly responsive to the respective unit commanders. Mortars are never placed in reserve. They are assigned a mission and positioned to accomplish it. The mortar platoon or section is employed in one of four ways.

EMPLOYMENT

1 GS

The platoon supports the entire AMTF. This method of employment provides flexibility in shifting and massing fires and simplifies control and logistical support. GS is appropriate, however, only when centralized control permits delivery of fires in support of all, or a major portion of, the unit throughout its zone or sector. GS is modified by assigning priority of fires to one of the subordinate elements. This allows the commander to retain centralized control while making indirect fire more responsive to a particular unit.

directing reinforcement. Responsive reinforcement is dependent on quickly establishing communications and operating procedures between mortar units.

4 ATTACHMENT

When part or all of a mortar platoon (section) is attached, it is under the commander of the unit to which it is attached. He selects the (mortar) position(s), controls its deployment and fires, and is responsible for its logistical support and security.

2 DS

All or part of the platoon or section supports one maneuver element and responds directly to that element's request for fire. The platoon or section is positioned to insure that the desired support can be provided. When not engaged in a unit DS fire mission, the mortars may fire in support of other maneuver elements.

Attachment is appropriate when units are assigned independent missions such as roadblocks or ambushes that are out of range of the mortar platoon's (section's) primary location. This method is avoided if adequate fire support can be provided by other means, since it may reduce the commander's ability to mass fires.

3 REINFORCING

To mass fires, the 107-mm platoon, or 81-mm section of an uncommitted or unengaged company, may be tasked to augment the fires of another mortar unit. A reinforcing mortar unit is positioned by the reinforced unit or the commander

Mortars may be attached to a company during the insertion, particularly when the battalion is being inserted by companies. Once the insertion is completed, control is centralized or returned to the original commander of the mortars.

The 107-mm mortar can be repositioned short distances by infantrymen. Long moves require vehicles or helicopter transport.

TACTICAL AIR SUPPORT OF LAND OPERATIONS (TASLO)

Airmobile forces will rely heavily on tactical air support of land operations (TASLO) in support of an AMTF. If requested, the Air Force will normally develop a TASLO package which will provide the following support:

- Offensive air support (OAS).

- Air interdiction.

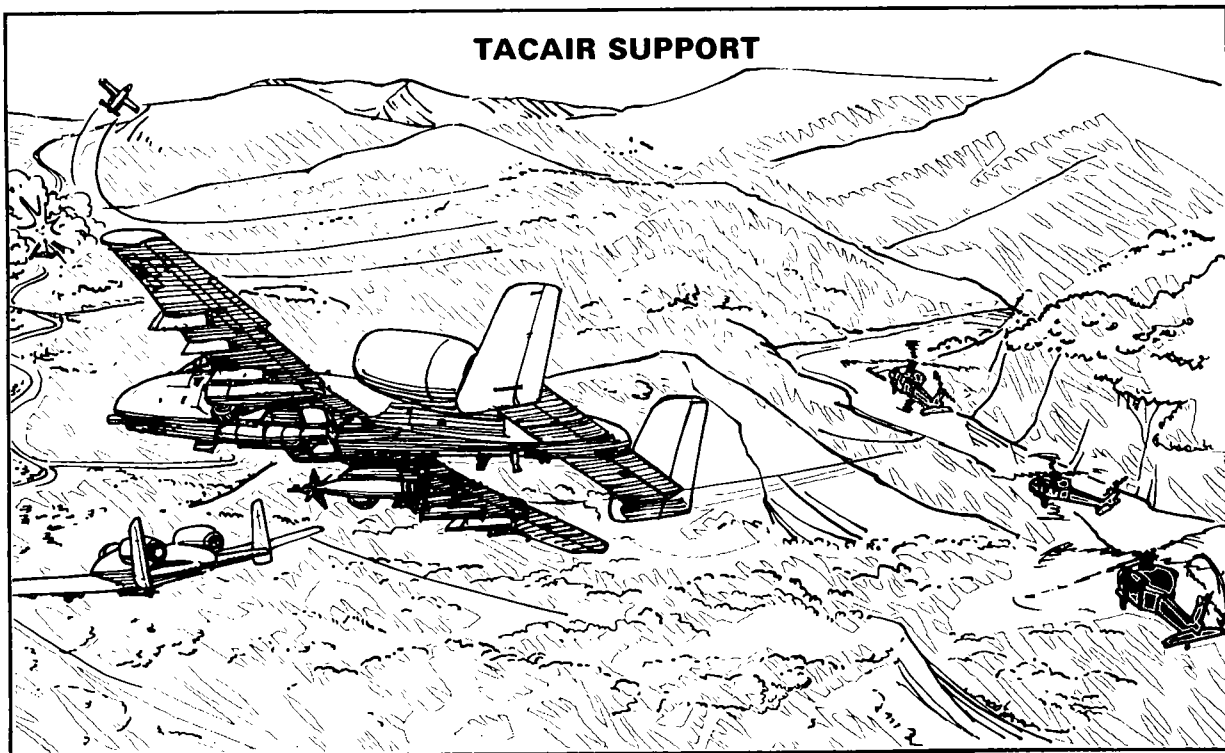
- Tactical air transport (for follow-on resupply).

- Complementary air operations (search and rescue [SAR], EW etc.).

While the AMTF is en route, TASLO may provide cover and armed reconnaissance for security to the front and flanks. In performing this role in a medium-to-high threat environment, specially equipped aircraft are employed to suppress and/ or

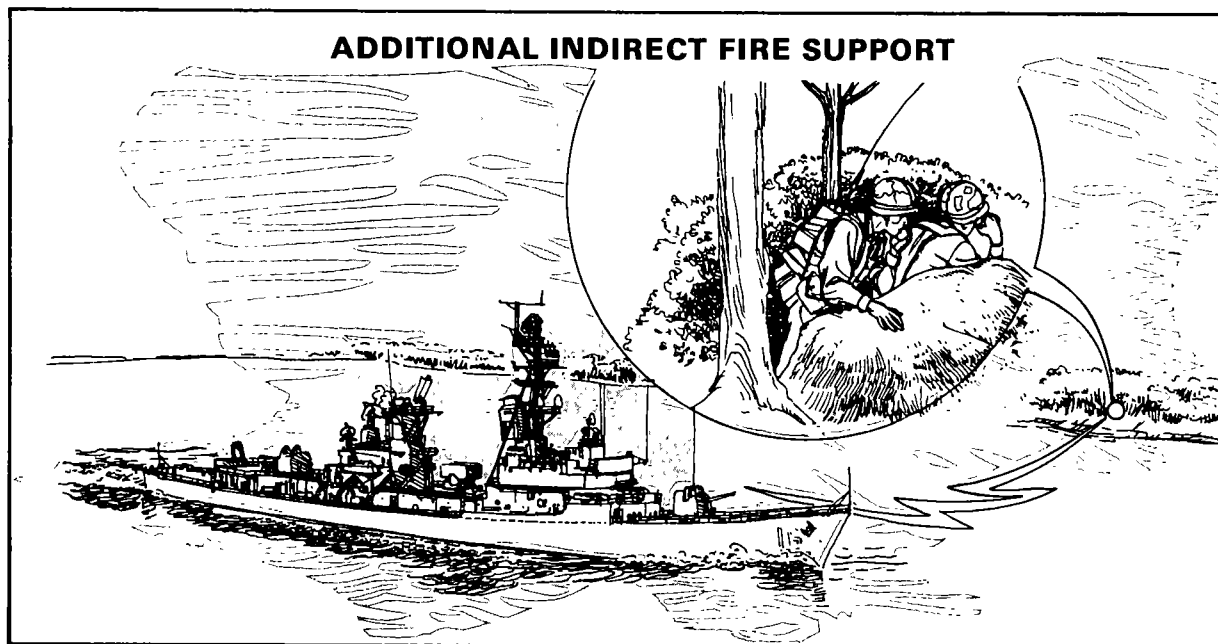
destroy surface-to-air missile sites and radar-directed guns. Specially equipped aircraft may be used to selectively jam enemy radar and communication signals. In addition, TASLO capabilities for employing special purpose munitions, such as smoke, are considered in planning the AMTF mission. In the OAS role, TASLO provides a variety of ordnance capable of destroying or suppressing targets beyond the range of other assets. TASLO is integrated into the TF scheme of maneuver and fire support plan.

TACAIR may be provided by USAF, US Navy (USN), US Marine Corps (USMC), or allied aircraft. *The service providing support usually provides a control party to advise the TF commander (and his staff) on integration of OAS with ground operations.* Close air support (CAS) is normally controlled by an FAC. However, attack helicopter and air cavalry team leaders, or FIST personnel, can control CAS when an FAC is not available.



NAVAL GUNFIRE

When operating within range, the AMTF may be supported by naval gunfire. In this case, a fire control party provides ship-to-shore communication, liaison to integrate naval fire into the ground tactical plan, and spotting teams to adjust the fire.



AIR CAVALRY

Air cavalry troops/squadrons are well suited to provide security, overwatch, and reconnaissance missions for an airmobile operation.

Air cavalry units perform essentially the same missions as ground cavalry and are organic members of cavalry organizations. They provide an increased capability to rapidly reconnoiter over wide, relatively open areas. Air cavalry does not have the terrain-holding power of ground cavalry, but it does have greater mobility. This mobility helps reduce enemy reaction time and insures more time for reaction by the friendly main body.

Air cavalry elements may be available to the AMTF commander for specific operations.

AIR CAVALRY TROOP

The air cavalry troop is designed to conduct reconnaissance, security, and economy-of-force operations. It consists of a headquarters, flight operation section service platoon, and aeroscout, aeroreconnaissance, and aeroweapons platoons.

Aeroscout Platoon

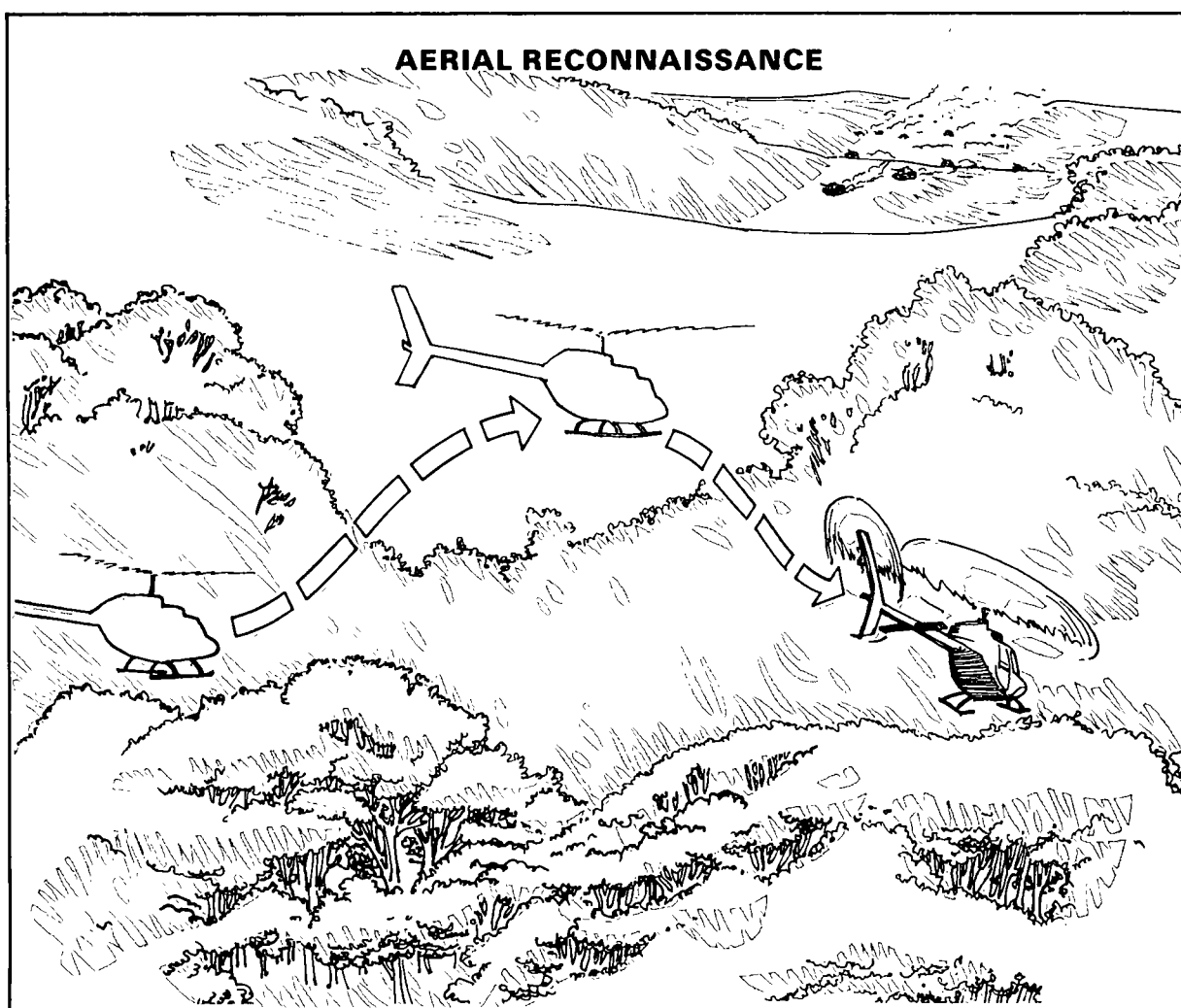
The aeroscout platoon is equipped with light observation helicopters (LOH). They provide a primary reconnaissance capability.

Aeroreconnaissance Platoon

The aeroreconnaissance platoon has a limited airmobile and ground reconnaissance capability with its four reconnaissance squads.

Aeroweapons Platoon

The aeroweapons platoon is equipped with nine attack helicopters, each capable of carrying automatic weapons, grenade launchers, rockets, and antitank guided missiles (ATGM). This platoon provides a mix of direct, long-range AT firepower and a high volume of suppressive fire.



LIAISON REQUIREMENTS

A troop may be OPCON to the AMTF, but more often it is in general support of the operation. In either case, it establishes liaison and communication with the AMTF. It fulfills AMTF reconnaissance requirements.

When operating with the AMTF, air cavalry precedes the TF along flight routes to locate enemy air defense radar systems and to provide early warning. Air cavalry can be used to suppress these systems or develop a bypass route for the AMTF. Once the TF is inserted, air cavalry provides early warning of the enemy and engages him with its organic firepower.

AIR DEFENSE

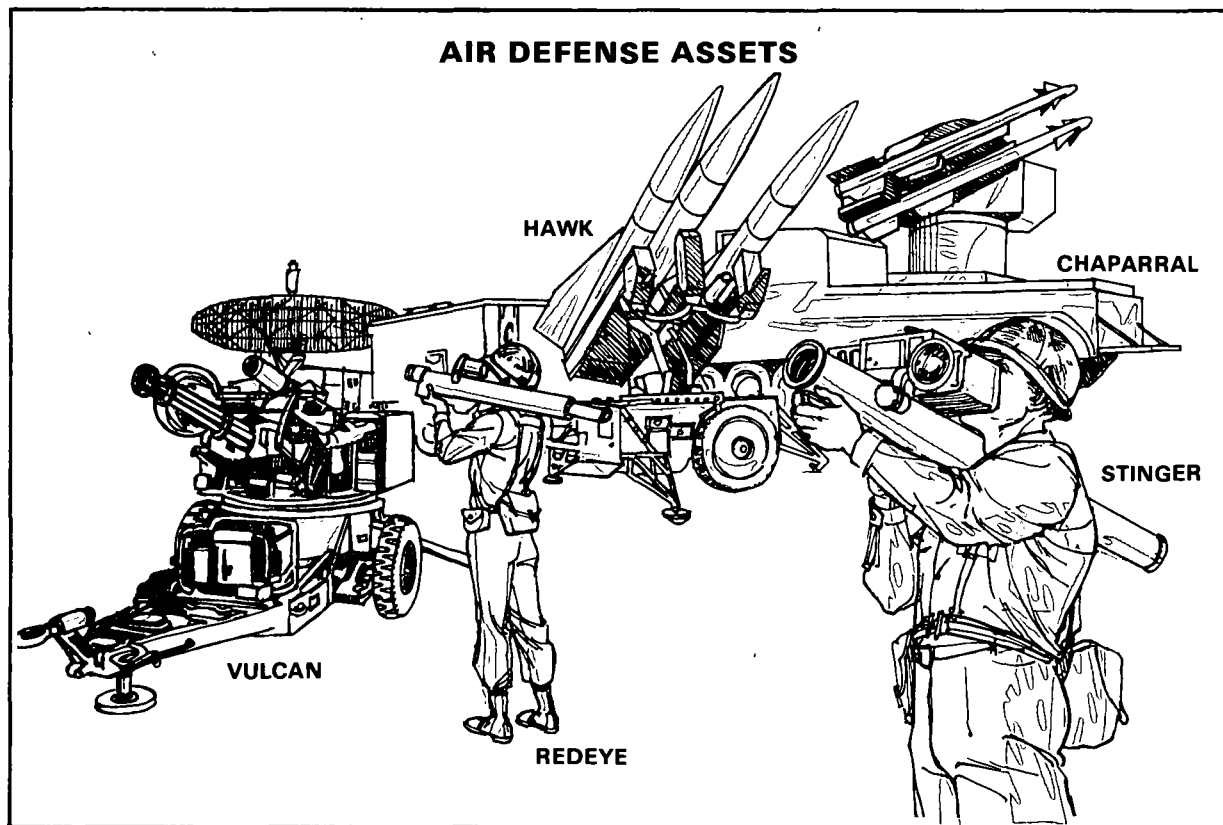
Air defense protection for the AMTF within friendly lines is provided by all

elements of the ADA systems (Hawk, Chaparral, Vulcan, Redeye, and Stinger).

EMPLOYMENT

When the AMTF penetrates enemy-held territory, air defense comes from ADA assets that can be displaced by helicopter. Due to weight restrictions, air defense forward of the FEBA is limited to organic Redeyes, Stingers and Vulcans (towed). The Vulcan requires cargo helicopters for displacement and positioning.

NOTE: The Vulcan battalion has FM radios. Due to the extended distance between the Vulcan battery control headquarters and the battery itself (when it is attached to the AMTF), the battery may require long-range AMTF communication facilities.



ENGINEERS

A combat engineer platoon may be attached to or in DS of the AMTF. *They are prepared to:*

MOBILITY/COUNTERMOBILITY SUPPORT

Breach obstacles and minefields.

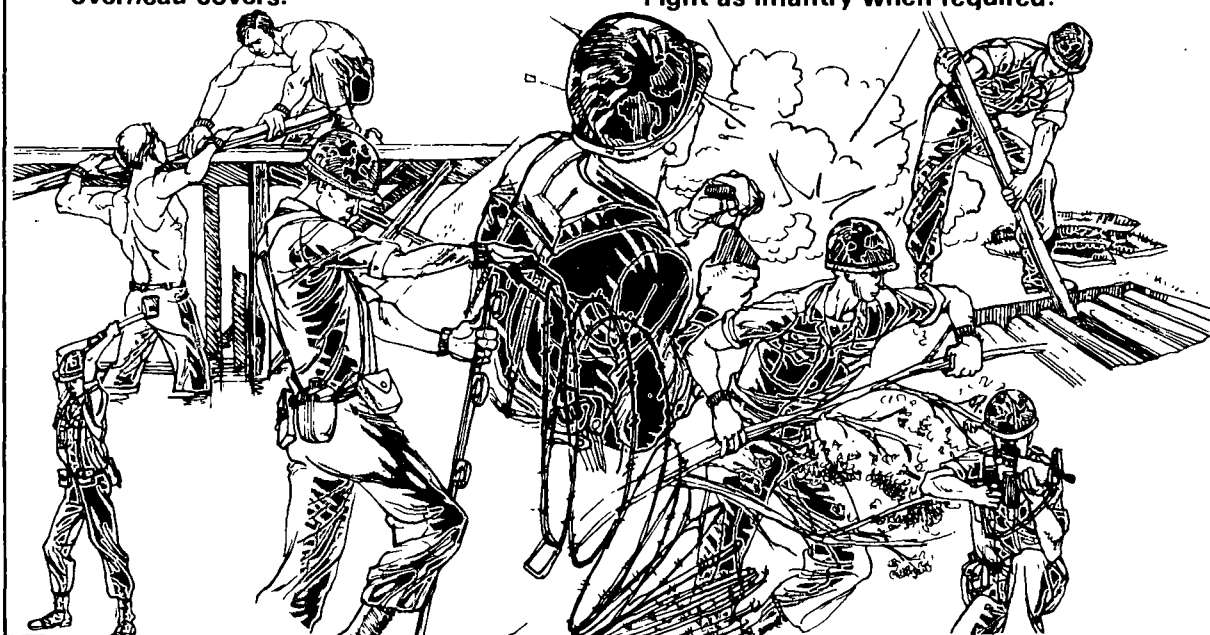
Repair bridges, landing strips, and movement routes.

Construct obstacles and advise and/or assist in minefield emplacement.

Clear PZ obstacles. Engineers may accompany the assault echelon and improve the LZ for follow-on forces.

Assist in the construction of bunkers and overhead covers.

Fight as infantry when required.



The AMTF commander or his S3 assigns task priorities to engineers. During the initial assault, engineers may have to rappel from hovering helicopters while their equipment (chain saws, pioneer tools, and demolitions) is lowered on lines to the ground.

COMBAT ROLE

Engineers contribute to the mobility of the AMTF and hinder the mobility of the enemy. The TF provides security and physical assistance to speed completion of required engineer tasks. When the tactical situation requires, engineers must be prepared to fight.

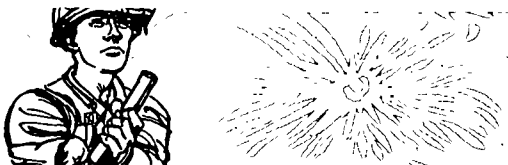
VISUAL SIGNALS

Visual signals are established by unit SOP. They include arm-and-hand signals, pyrotechnic signals, or flag signals. Any one of these signals is appropriate if personnel can see and understand the signal(s).

Arm and Hand



Pyrotechnics



Flag



COMMUNICATIONS

Airmobile forces rely, to a large extent, on radio and visual signals for communications. Due to ACL and limited transport on the ground, radio equipment is often restricted to man-portable radios. The range of man-portable FM radios, organic to most infantry units, restricts the distance units can operate apart.

RADIO

To increase radio operating range, companies carry the RC-292 antenna or have the means to build an expedient antenna. If these antennas are not adequate, the communications-electronic officer requests one or the other of the following:

Long-range single side band (SSB) radios.

Radio relay or retransmission facilities.

The requests are processed through channels to the division signal officer (DSO) who provides equipment and personnel to operate it.

Visual signals are important when operating against a threat that employs an extensive electronic warfare (EW) network. The AMTF may be required to operate with limited radio communication. To reduce vulnerability to EW, the TF:

Employs proper radio procedures.

Uses authentication tables, ciphers, and codes.

Insures antennas are properly installed.

Operates radios on low power when possible.

INTELLIGENCE

Standard combat intelligence collection, processing, and dissemination procedures apply to airmobile operations. However,

these procedures must be expedited due to the rapid tempo of the AMTF operations.

The AMTF requires maps, aerial photographs, weather forecasts, and timely intelligence concerning enemy air defense capabilities. When the mission is assigned, the command echelon assigning the mission requests intelligence information required by the AMTF and provides this information as it is processed. It is disseminated down to the lowest level necessary.

ROLE OF S2

The S2 is the TF commander's representative for getting information. He processes information needs through brigade and higher intelligence channels and insures that useful information goes to elements of the AMTF.

ROLE OF AERIAL RECONNAISSANCE

While the TF utilizes all collection agencies, special emphasis is placed on aerial collection because its response time is quicker than other means. To obtain an accurate portrayal of the enemy, the AMTF requires aerial reconnaissance to include visual and electronic data (black and white aerial photographs, infrared photographs, and input from side- and forward-looking airborne radar).

Aerial reconnaissance missions may be flown by the military intelligence company's aerial reconnaissance and surveillance unit, or by a USAF tactical reconnaissance wing. The TF commander can expect results from these missions in about 6 hours from the time of request.

NOTE: The AMTF is also an excellent source of information. TF soldiers provide a good source of intelligence about the battlefield.

COMBAT SERVICE SUPPORT UNITS

Combat service support is the administrative/logistical effort required to

maintain the AMTF's fighting capability. The TF commander, through the S1 and S4, anticipates and plans support requirements to insure mission accomplishment.

MEDEVAC

The TF does not use assault helicopters for medevac when medevac unit helicopters are available. The OPOD should contain the following information (provided by the S1):

Designation of the medevac unit.

Its location during the operation.

Evacuation frequency and call sign to include emergency signals.

There are two options for controlling medevac requests:

Allowing subordinate units to request medevac direct from the unit.

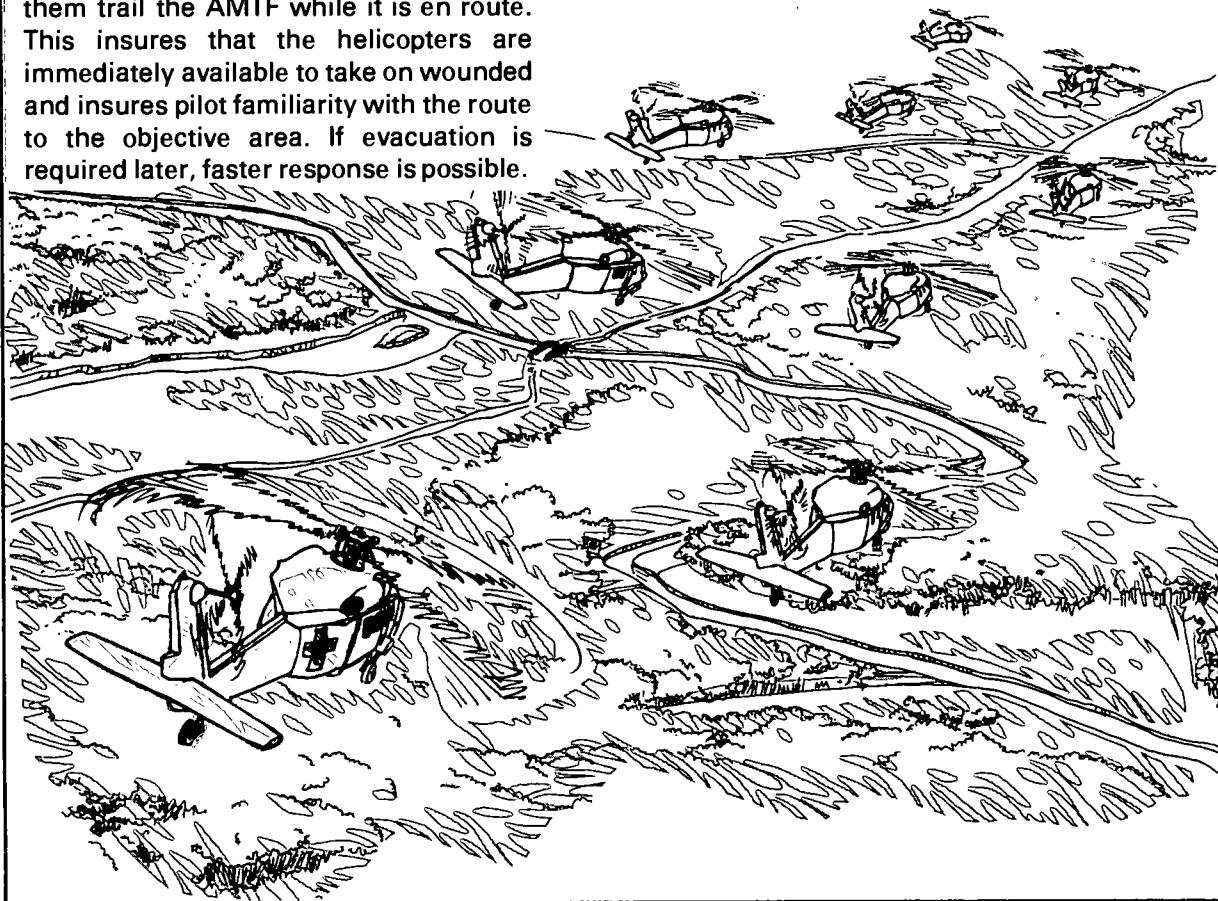
Receiving and consolidating requests, establishing casualty priorities, and dispatching medevac aircraft from the S1 section at TF headquarters.

COORDINATION WITH TF

When possible, the TF S1 coordinates directly with the medevac unit commander. He provides the unit a complete copy of the TF's communications-electronics operation instructions (CEOI), PZs/LZs, and flight route overlay. This makes it possible for the medevac helicopter pilot to establish radio contact on the internal radio net of the supported unit. This helps relieve congestion on the command radio net. When medevac communications take place at battalion level, they are usually done on the administration/logistics net. With the medevac unit having the PZs, LZs, and flight routes, the TF commander can direct medevac aircraft through his sector via a specific flight route. This lessens interference with ground operations, indirect fires, and TACAIR.

MEDEVAC SUPPORT

A good technique used in the employment of medevac helicopters is to have them trail the AMTF while it is en route. This insures that the helicopters are immediately available to take on wounded and insures pilot familiarity with the route to the objective area. If evacuation is required later, faster response is possible.



Medevac helicopters may not accompany the TF assault. In this case, infantry units use assault helicopters to evacuate wounded prior to requesting medevac. Wounded personnel evacuated are placed on the last assault helicopters leaving the LZ and are "back hauled" to the rear area. The last helicopters are used to avoid delay of the entire flight while the wounded are being loaded. This provides faster medevac, allows maximum utilization of air assets, and eliminates overuse of the medevac unit. (Medevac procedures should be covered in the unit's SOP).

LOGISTICS

Because the AMTF maneuver elements displace so often and unit supply trains require a large number of helicopters to displace, train elements remain in the brigade area. Thus, the commander can move his maneuver elements without worrying about the trains, and the total lift requirements are reduced.

The TF commander moves only those trains to the objective area that are *essential*.

ROLE OF S4

When he determines what to move, he allocates aircraft to move it and, more importantly, decides when to move it. Combat service support assets normally move at the rear of the assault echelon or in the followup echelon.

The TF S4 forecasts AMTF logistical requirements and provides for a timely flow of supplies to sustain the operation.

The limited TF capability to transport supplies once on the ground is considered when scheduling resupply flights. Resupply is delivered directly to requesting units whenever possible (this is especially true with heavy items).

The S4 plans for emergency resupply by developing prepackaged, mixed loads of ammunition, water, and food. Each load contains a mix of supplies. In case only a few aircraft succeed in the resupply mission, the units will get the essential supplies. During marginal weather, resupply may be provided by fixed-wing aircraft employing electronic precision delivery systems such as AWADS (adverse weather aerial delivery systems).

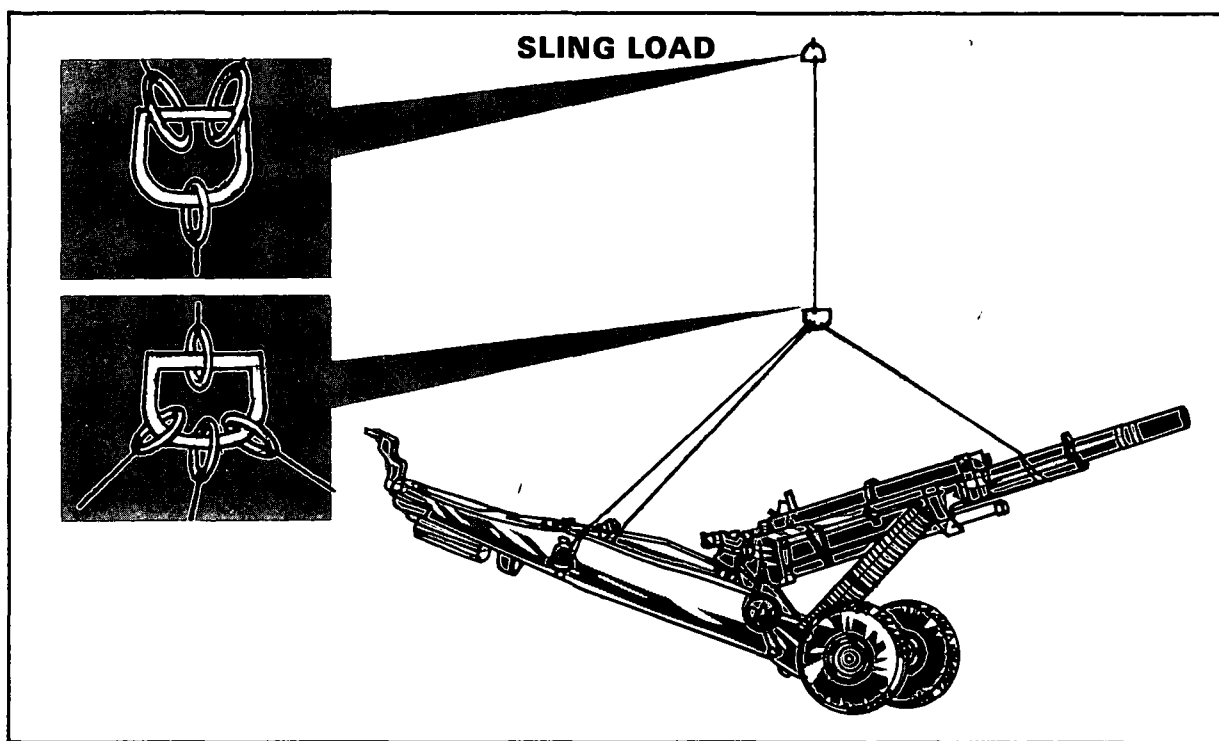
Combat supplies are requested and moved to the unit trains employing procedures common to all infantry operations.

EXTERNAL SLING LOADS

Supplies going forward from the trains move by methods that reduce loading and unloading times. Palletized loads or external sling loads reduce the ground-time vulnerability of aircraft because they can be unloaded quickly.

When preparing the loads, the S4 provides essential equipment and personnel (e.g., hookup teams, ground guides, signalmen, slings, pallets, nylon webbing, and clevises).

A sling made of nylon webbing is used for all loads. Aircraft with sling loads are located to the rear of assault formations. In other situations, all helicopters of the formation may pick up sling loads. If internally and sling loaded helicopters are to arrive at the LZ simultaneously, sling loaded helicopters depart the PZ first because they fly slower than the other helicopters.



SLING OPERATIONS

PERSONNEL DUTIES

The following are duties of personnel during sling loading operations:

The **sling load signalman** assists in guiding the helicopter, by arm-and-hand signals, to a point and height over the load to permit hookup. Prevailing winds and obstructions on the PZ are taken into consideration. After hookup, he signals the pilot to lift the load a few inches above the ground to determine if it is secure. After enough altitude has been obtained to clear all obstacles on the departure route, he signals the pilot to clear the PZ.

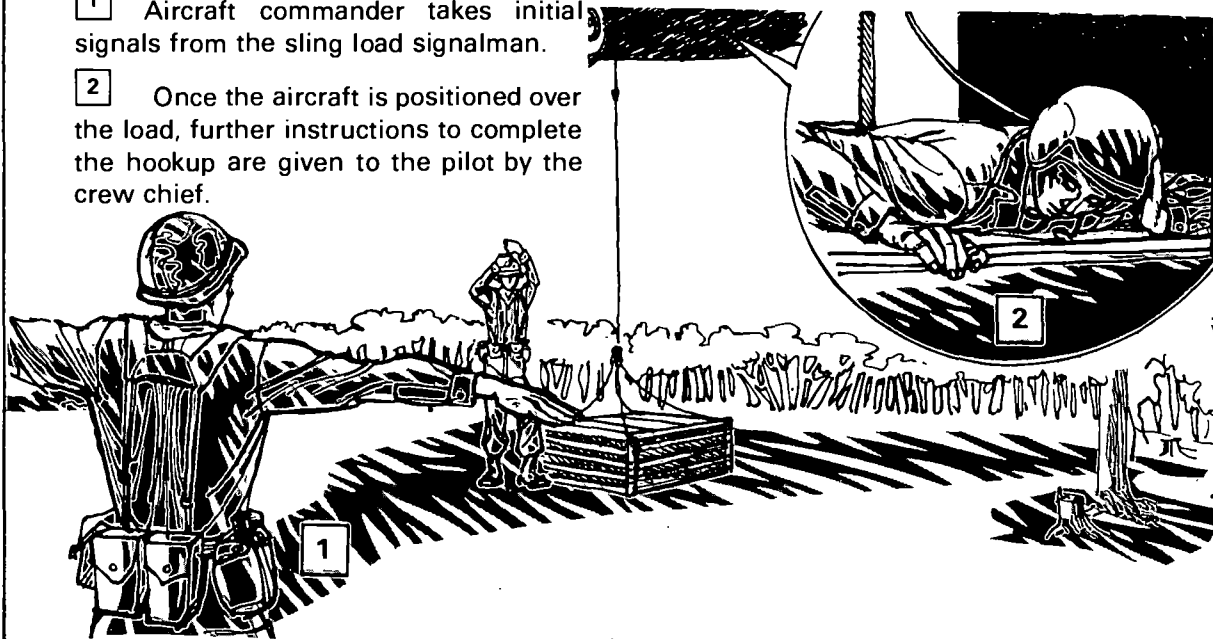
The **hookup man** moves to the load when the helicopter is over it. He gives the signalman appropriate arm-and-hand signals to reposition the aircraft (if required to make the hookup) and then hooks up the load.

The **crew chief** wears a radio headset with an extension cord long enough to permit him to lie down inside the helicopter and observe the loading while looking out the door. He directs the pilot as the aircraft is maneuvered over the load.

PROCEDURE

When hooking up loads, the following procedure is recommended:

- 1 Aircraft commander takes initial signals from the sling load signalman.
- 2 Once the aircraft is positioned over the load, further instructions to complete the hookup are given to the pilot by the crew chief.



FORWARD ARMING AND REFUELING POINT

The AMC has within his unit the equipment required to establish a refueling point. However, his requirement for fuel must be forecast and, when delivered, physical assistance and security for the refueling point is provided by the AMTF. The same actions are taken to fulfill the aviation unit's ammunition requirements.

These requirements lead to the establishment of a forward arming and refueling point (FARP). The FARP improves helicopter(s) chances for survival by reducing overall flying time and increasing aircraft response to the TF. The FARP is:

Established in the vicinity of the ground unit exercising operational control (behind the FEBA, and out of range of enemy artillery).

Positioned to reduce refueling/rearming time, thus optimizing helicopter time on station (mission requirements).

Fully mobile, using ground vehicles and helicopters.

Capable of operation within 30 minutes of installation and capable of redeployment within 30 minutes.

Capable of performing refueling operations rapidly and efficiently.

Air lines of communications to support sustained FARP operations are established and maintained. FARP operations require extensive logistics support from division or corps elements.

AIRCRAFT MAINTENANCE

Aircraft have substantial maintenance requirements. However, maintenance sup-

port is kept to a minimum in the operational area:

A method used to accomplish this, and still have responsive maintenance, is to have aircraft standing by to move mobile maintenance crews where required.

In addition, a maintenance aircraft and personnel may accompany the flight.

If an aircraft has maintenance problems during movement, maintenance personnel may be able to repair it and save valuable aircraft operation time.

DOWNED AIRCRAFT

If an aircraft is forced to land on enemy terrain due to mechanical problems or combat damage, every effort is made to protect the aircraft and crew until they can be evacuated. ***However, mission execution has priority over rescue and recovery operations.***

The AMTF commander is notified immediately of any downed aircraft. He takes action to secure and recover the crew and aircraft with his resources or requests recovery by higher echelon.

When an aircraft is downed, the senior occupant assumes command and establishes a defense of the area or organizes evasive action.

If an aircraft is abandoned, steps are taken to destroy it to preclude its capture or the capture of sensitive equipment or documents. The level of authority required to destroy the aircraft is established in higher echelon SOPs (it may be covered in the OPORD). However, if capture is imminent, the aircraft, equipment, or documents should be destroyed.

Recovery of a downed aircraft is accomplished by an aviation unit. The AMTF commander may have to provide security for the recovery team.



CHAPTER 4

AIRMOBILE PLANNING CONSIDERATIONS

Section I. GENERAL

Regardless of planning time available, each airmobile operation has four phases.

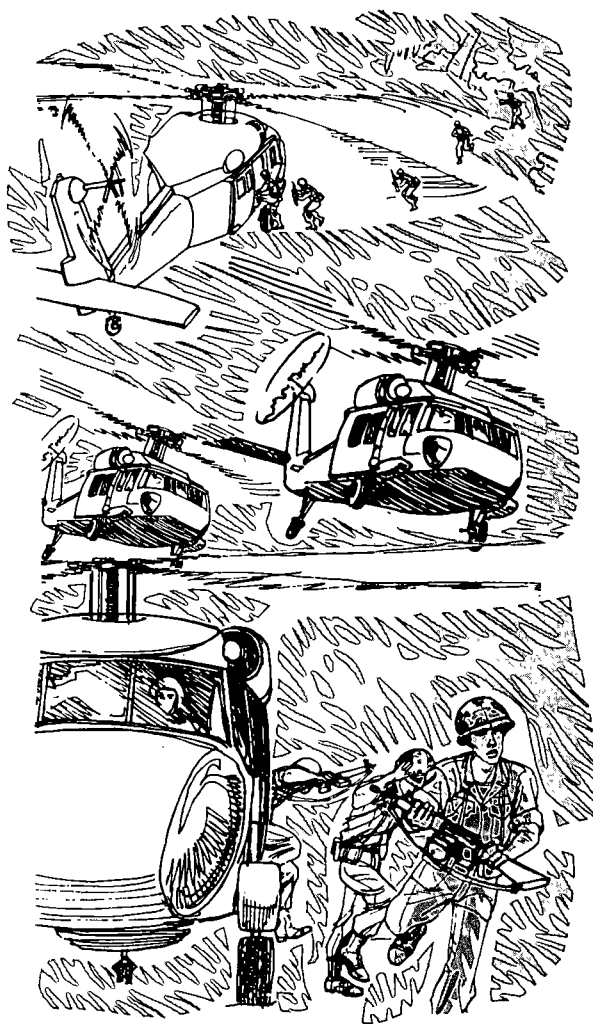
The four phases of an airmobile operation are:

- *Loading.*
- *Airmovement.*
- *Landing.*
- *Ground operations.*

All airmobile operations are basically alike up to the ground operation phase. The difference is time — time to plan — time to prepare.

Some are conducted after extensive planning. With adequate planning time, the airmobile task force (AMTF) uses the sequence of command and staff action and troop leading procedures common to other combat operations.

Other airmobile operations are conducted with limited planning time. Planning steps for these operations may be compressed or conducted concurrently.



Loading, airmovement, and landing phases (together) move the unit from the pickup zone (PZ) to the landing zone (LZ). The ground operation phase is the most important phase, and the other phases are based on it. In the ground phase, the AMTF conducts any of the combat operations described in chapter 5.

Planning for each phase should not be done in isolation of the other phases. Planning that pertains to several different phases may go on simultaneously. For example, the selection of PZs and LZs occurs before flight route selection can be made, even though they are on opposite ends of the airmobile operation's sequence and pertain to different phases of the operation.

Detailed planning translates mission orders into a scheme of maneuver with specific tasks assigned to each subordinate unit.

Planning for airmobile operations is as detailed as time permits to include completion of written plans and orders. The fleeting nature of tactical opportunities, however, frequently does not permit detailed written plans and orders. Within time constraints, the AMTF commander carefully evaluates capabilities and limitations of maneuver elements, aviation resources, and fire support means. He must insure the plan has a high probability of success. When time does not allow detailed planning, the adequacy of standing operating procedures (SOP) and previous training in airmobile operations may be the difference between success and failure.

DIVISION RESPONSIBILITIES

Many of the routine tasks related to airmobile operations are accomplished above battalion levels. The division, since it

controls air assets, assigns the mission to subordinate units and allocates resources accordingly. The division is also the lowest command echelon that has a planning staff with the necessary data gathering and analysis capabilities. For this reason, when an airmobile mission is assigned by division, or higher level command, that headquarters begins the planning process.

The division uses its resources to gather data and provides lower echelons information to enable them to select PZs, LZs, and flight routes for the AMTF; or, division may complete the planning tasks itself.

When the division does these tasks, subordinate commanders can expend their limited time to accomplish other key planning tasks.

When an infantry unit is given an airmobile mission, the assigning echelon provides the latest extended weather forecast, up-to-date intelligence, initial fire planning, and many of the terrain considerations relevant to the operation. Additional information that is not provided may be requested and/or completed by the AMTF. All echelons attempt to reduce the planning burden of subordinate units.

BATTALION RESPONSIBILITIES

The battalion is the lowest level that has sufficient personnel to plan, coordinate, and control an airmobile operation. When company-size operations are conducted, the bulk of the planning takes place at battalion and higher headquarters.

Specific planning considerations for each phase of the airmobile operation are discussed in sections II-IV.

FACTORS TO CONSIDER

There are three factors that impact on all phases — weather, operations security (OPSEC), and the airmovement table.

WEATHER

Weather is a fundamental consideration. Reports are analyzed up to mission time. Adverse weather, if severe enough, may cause modification, delay, or cancellation of an operation. Marginal weather with low ceilings and limited visibility may allow operations by a well-trained force and actually benefit the unit by improving tactical surprise, reducing effectiveness of enemy air defense weapons, and providing passive protection from enemy tactical air. On the negative side, however, marginal weather also limits friendly air support and observed artillery fire.

Weather extremes which preclude, delay, or limit helicopter operations include icing conditions (hail, sleet, heavy rain, or snow), visibility of less than $\frac{1}{2}$ mile, very low ceilings, and high, gusty winds.

Under some conditions, weather phenomena (such as persistent fog in valleys, or drifting snow or sand) will not allow the use of a particular PZ or LZ.

Temperature

Temperature is always a weather consideration due to its effect on allowable cargo load (ACL).

Altitude (or Elevation)

Altitude (or elevation) of LZs and PZs also affects ACL, as does relative humidity. Higher temperatures and altitudes produce "thinner" air which reduces the lift capacity of aircraft. As any of these factors increases, ACLs normally decrease.

Density Altitude

Density altitude is defined as pressure altitude corrected for temperature. As density altitude increases, the ACL for the aircraft may decrease. This is a major consideration when operating in mountain or desert areas. The ACL may change on a daily, even hourly, basis. The aircraft that had an ACL of eight personnel one day may lift only seven the following day. The air mission commander (AMC) determines the ACL for type aircraft daily, based on the density altitude, and tells the ground unit.

Weather information is analyzed for trends. If the operation begins in marginal weather, the commander must consider the possibility that it will deteriorate below acceptable limits during the operation. This may result in an interruption of helicopter support and require changes in planned operations.

WEATHER DATA

FORMAT

Weather forecasts are received in the following format:

Ceiling.

Visibility.

Weather (e.g., clear, fog, rain, or snow).

Additional information as requested by the S2.

Maximum Winds

Observation helicopter (OH) — 30 knots.

Utility helicopter (UH) — 40 knots.

Cargo helicopter (CH) — 60 knots.

NOTE: Gusting winds, in excess of 15 knots over the lull wind, may preclude UH usage. Significant weather patterns (which limit operations) are moderate turbulence and icing.

CONSIDERATIONS

Allowable Weather Limits

(Applicable to combat operations and tactical training at a military airfield.)

Visibility — ½ mile.

Ceilings — Clear of clouds.

Extremes Limiting Tactical Air (TACAIR)

Ceiling — 1,000 feet.*

Visibility — 2 miles.*

***NOTE:** Operational design of A-10, close air support (CAS) aircraft. Other type aircraft require better weather conditions.

OPERATIONS SECURITY

OPSEC is the protection of military operations and activities from enemy exploitation. It includes those actions taken to deny the enemy information concerning plans, intentions, and operations.

COUNTERMEASURES

The AMTF counters enemy intelligence collection efforts with OPSEC.

OPSEC measures include:

Signal security. This includes radio listening silence, use of low power transmission, use of directional antennas, proper use of codes and radio procedures, and secure communications equipment. The enemy cannot detect a radio that is not transmitting a signal. Only mission essential radio transmissions are allowed.

Information security. This limits the dissemination of operational information until the last minute. All written, oral, and graphic information is properly secured.

Deception operations. This type operation involves tactical and strategic plans and orders that deny enemy surveillance true information while providing false information to achieve surprise. Deception operations are approved at corps level. However, there are specific deceptive actions that the AMTF commander can approve. These include firing artillery preparations on several LZs to deceive the enemy as to which one(s) will be used, or false insertions such as landing helicopters on an LZ and not offloading any troops. False insertions are high-risk actions and the decision to employ them is considered against enemy capabilities.

Passive security. This includes such measures as camouflage, countersurveillance, noise and light discipline, warning devices, and rapid troop insertions.

Active security. These measures include employment of observation and listening posts, patrols, surveillance devices, air cavalry reconnaissance units, and fire control plans.

The AMTF is vulnerable to enemy intelligence gathering methods.

The enemy employs:

Signal intelligence (SIGINT). This includes communications and electronic intelligence. The enemy is capable of listening to radio transmissions and detecting radio transmissions that are sent secure voice.

Human intelligence (HUMINT). The enemy sends out reconnaissance patrols, establishes observation posts, and employs agents. He also gathers intelligence from local collaborators and prisoners of war.

Photographic intelligence (PHOTINT). This type information is gathered from airborne/space type platforms (e.g., aircraft, satellites).

Electronic combat. The enemy uses direction finding equipment to locate radios and radars and may attempt to jam or disrupt radio nets and radar signals or employ electronic deception.

OPSEC helps maintain surprise in airmobile operations.

AIRMOVEMENT TABLE

The airmovement table does the following:

Contains aircraft allocation.

Designates number and type aircraft in each serial.

Specifies departure area, route to and from loading area, and loading, lift-off, and landing times.

The table is prepared jointly by the AMTF staff and aviation personnel. It is completed in detail since it serves as the primary movement document.

NOTE: The table controls TF movement from PZ to LZ as airmobile forces fly to the LZ utilizing radio listening silence, if possible.

The table insures that all personnel, equipment, and supplies are accounted for in the movement and that each aircraft is planned for a full load, correctly positioned in the flight, and scheduled for the right LZ. (A sample airmovement table, and an explanation of its preparation, is located at app B.)

When a complete, detailed table cannot be prepared, subordinate commanders are provided essential information. This allows them to prepare expedient movement tables to support the overall plan.

EXPEDIENT MOVEMENT TABLE**COMPANY C**

PZ PRIMARY - BLUE ALTERNATE - BLUE 1 _____ Designated PZ(s) and LZ(s).

LZ PRIMARY - 1 ALTERNATE - 2

AIRCRAFT - 18 1 UH-1 - 121 COMBAT SUPPORT _____ Number and type of helicopters available to the particular elements (to include unit and/or call signs).

ARRIVE IN PZ H-21 _____ Time of arrival at PZ(s).

LIFT-OFF FROM PZ H-18 _____ Time of lift-off at PZ(s).

LAND IN LZ H-HOUR (1000 HRS) _____ Landing time at LZ(s).

FLIGHT ROUTE PRIMARY - APPLE, _____ Designated flight route(s).

ALTERNATE - ORANGE

ACL - 8 _____ ACLs (correct for type aircraft, according to density altitude at lift-off).

Section II. LOADING PHASE

LOADING PLANS

Plans should accomplish the following:

Identify, establish, and provide control for the PZ.

Explain the movement of troops and equipment to the PZ.

Establish sequence and priority of loading for each unit (to include organization of troops and equipment into aircraft loads).

Provide for troop briefings.

COORDINATION WITH AMC

Loading plans are carefully coordinated with the AMC, or his representative, relative to PZ selection, air traffic control (ATC) arrangements, and aircraft loading.

WRITTEN PLAN

For battalion or larger airmobile operations, a written plan may be required to:

Control movement of troops, supplies, and equipment to and about the PZ.

Designate unit loading sites.

Control timing for arrival, loading, and departing of aircraft.

The requirement for detailed, written plans can be reduced by having adequate unit SOPs covering PZ operations and loading plans. Regardless of SOP adequacy, the loading phase should receive command attention to insure that it goes smoothly. *A well-planned and properly executed loading operation is imperative to mission success.*

PZ IDENTIFICATION

Tentative PZ identification is the first step in loading plan development.

NOTE: Alternate PZs and LZs are identified at the same time. The goal of PZ/LZ identification is to locate suitable areas to accommodate the lift aircraft. Other requirements for LZs are addressed in the landing phase.

The S2 has staff responsibility for identifying possible LZs, and the pickup zone control officer (PZCO) identifies possible PZs. The PZCO is designated by the AMTF commander, usually the S3 Air. For battalion airmobile operations, each company commander appoints a company PZCO who operates a company PZ for the battalion.

NOTE: The specifications (such as degree of slope, wind speeds, and distance between aircraft) used in this chapter to identify and select PZs, LZs, and flight routes are planning guides for the ground unit. They may be adjusted by the AMC based on his evaluation of his unit's level of training. When the AMC adjusts the specifications, he usually makes them less restrictive (e.g., he may reduce the distance between aircraft from 35 to 25 meters).

Methods of Identification

Methods of identifying possible PZs or LZs are as follows:

Map study.

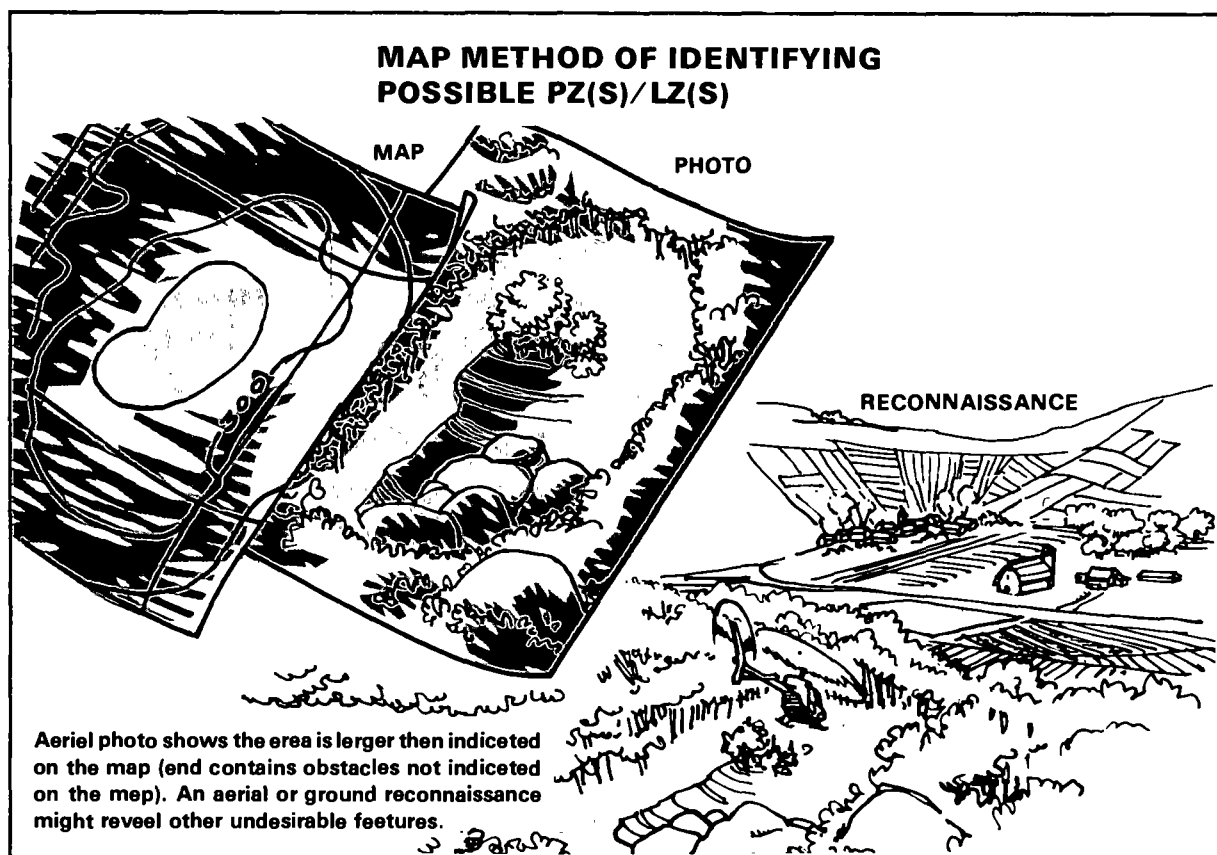
Aerial photographs.

Reconnaissance: aerial and/or ground.

The complete picture of possible PZs/LZs is obtained by using a combination of the above methods. A starting point in PZ/LZ

selection is normally the identification of possible sites based on a detailed map study. Each open area is analyzed to determine if it appears to be suitable for a PZ/LZ. Areas that are too small, or have unacceptable ground conditions (e.g., swampy areas) are not considered.

Select tentative locations based on map study. If other methods are available, use them to verify map information.



When open areas are identified, each is analyzed (to determine its suitability) by applying PZ/LZ considerations based on tactical and technical mission factors. The relative importance of each factor varies in relation to the situation. In most cases, a compromise between conflicting considerations is necessary since ideal circumstances seldom exist.

TECHNICAL FACTORS IN SELECTION

SIZE

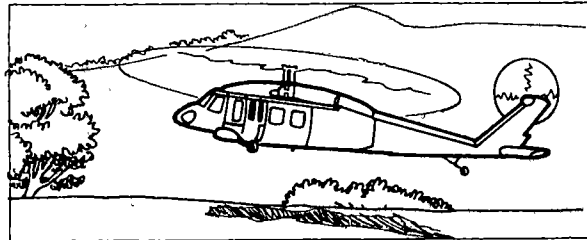
PZ/LZ size requirements depend on type and number of aircraft. Several factors affect the usable surface of the PZ/LZ: poor surface conditions and approach-and-departure obstacles reduce usable surface and affect the ACL. (To determine how many aircraft, by type, can use a PZ/LZ, see app B.)

SURFACE CONDITIONS

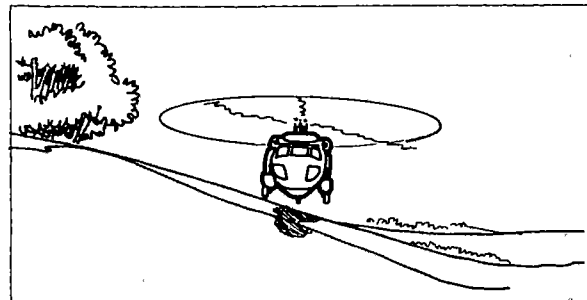
Surface conditions in the PZ/LZ should not conceal the touchdown point or create hazards to landing (e.g., sand, blowing dust, snow). The surface of the zone should be free of obstacles that could damage landing aircraft (e.g., no tree stumps, large rocks). It must be firm enough to support the traffic. Drainage should be adequate for rainfall runoff. If the surface is contaminated (chemical or radiological) to an unacceptable degree, it may preclude use of the area. If part of an area is unsatisfactory for any reason, that part is not used.

GROUND SLOPE — LANDING

As a guide: if the ground slope is 0 to 6 percent, land upslope; if the slope is 7 to 15 percent, land sideslope; over 15 percent, no touchdown (aircraft may hover to drop off or pick up personnel and/or equipment).

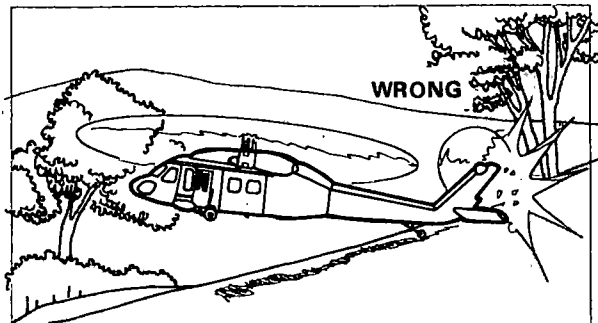


IF SLOPE IS 0% - 6%, LAND UPSLOPE.



IF SLOPE IS 7% - 15%, LAND SIDESLOPE.

NOTE: EXIT ON DOWNHILL SIDE TO AVOID ROTOR BLADES.



LANDING DOWNSLOPE COULD DAMAGE THE TAIL ROTOR AS IT MAY STRIKE THE GROUND.

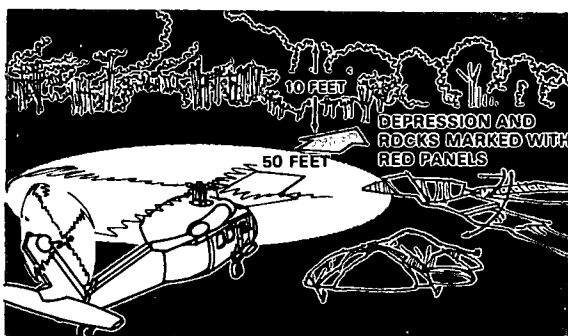
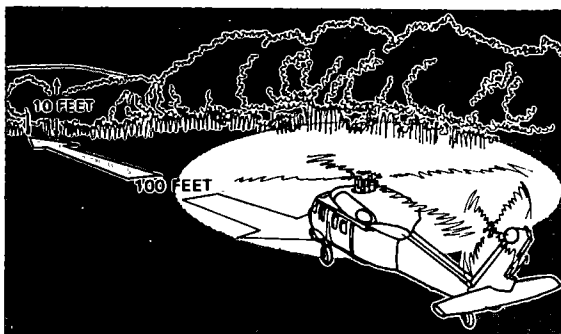
TECHNICAL FACTORS IN SELECTION, CONTINUED

OBSTACLES

For planning purposes, an obstacle clearance ratio of 10 to 1 is used on the approach and departure ends of the PZ/LZ. That is, a landing point requires 100 feet of horizontal clearance if a helicopter must approach or depart directly over a 10-foot tall tree.

A lesser ratio may be used if the helicopter executes a steep approach or departure in emergency situations or with light loads.

All obstacles within the PZ/LZ are marked with red lights at night (turned on only when PZ/LZ is in use), or red panels during the day. The markings are not used if they cause the position to be seen by the enemy.



APPROACH/DEPARTURE

The terrain surrounding a possible PZ or LZ is analyzed for air traffic patterns. In a tactical situation, constantly approaching the PZ/LZ over the same ground track should be avoided. Still, there are only so many ways to get into an area. Approaches should be free of obstacles, and landings should be made into the wind. Ideally, approach and departure are made along the long axis of the LZ over the lowest obstacle, and into the wind.

LOADS

When a helicopter is loaded to near maximum lift capacity, it requires longer distances to lift-off and land (it cannot ascend or descend vertically). The greater the load (near or at maximum), the larger the PZ/LZ must be to accommodate a flight.

PZ/LZ SELECTION

The planners should analyze each possible landing area and identify those that are usable and eliminate all others. (Additional information may be gained from forces that have previously operated in the area.) The usable PZs/LZs are referenced on maps or overlays by letter or number and include the total aircraft (by type) that can land at one time (in each PZ/LZ). This provides the TF a list of PZs and LZs in the area of operation. It is used as a reference for insertions/extractions and resupply. (If another AMTF unit enters the area, it can also use the list, saving valuable planning time.)

Assignment Criteria

Once available PZs are identified, the TF commander and his S3 select and assign PZs to be used by each unit. PZ criteria include:

Number and size of available PZs.
Multiple PZs avoid concentrating forces in one area. When possible, each PZ should accommodate all supporting aircraft at once.

Proximity of troops to the PZs.
Where possible, the selected PZs should not require extensive ground movement (to the PZ) by troops.

Accessibility to ground forces. *PZs should be accessible to vehicles to move support assets and infantry.*

Vulnerability to attack. *Selected PZs should be masked by terrain from enemy observation.*

Preparation. *It is better to select PZs that are usable as they are, or require only limited clearing.*

ASSIGNMENT OF PZs/LZs ON AIRMOVEMENT TABLE

Each unit is assigned a primary and alternate PZ. The alternate PZ is used if (for any reason) the primary cannot be used. The unit is also assigned an LZ and an

alternate LZ. This information is annotated on the airmovement table and PZ/LZ overlay and given to subordinate units.

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

(Classification)

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P - Primary
A - Alternate

AVN UNIT	LIFTED UNIT	LIFT	SER- IAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
					GREEN ALTN YELLOW					GREEN ALTN YELLOW		

1 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

PICKUP ZONE CONTROL OFFICER

The PZCO identifies available PZs and submits his list to the S3/AMTF commander for analysis and selection. The PZCO organizes, controls, and coordinates operations in PZs selected by the TF commander. (The S4 selects and controls logistical PZs.)

The PZCO accomplishes the following:

Forms control group. To manage operations, the PZCO forms a control group to assist him. It includes ATCs, pathfinders, subordinate unit PZ control teams, and support personnel (manpower for clearing the PZ; security). The PZCO selects a central location to position the group.

Establishes communications. Communication procedures for the PZ control group should provide two primary radio frequencies: one to control movement and loading of units, and one to control aviation elements (this may be the pathfinder

frequency). Alternate frequencies are provided as necessary.

Plans and initiates fire support. Planned fires near PZs should provide all-round protection from available support without endangering arrival and departure of troops or aircraft.

Plans and initiates security. The PZCO insures that adequate security is provided. Security protects the main body as it assembles, moves to the PZ, and is lifted out. Security elements should be provided by other forces if the PZ is within a friendly area. Security comes from AMTF resources if it is to be extracted from the objective area (chap 5).

Clears PZ. Once the PZCO organizes the PZ, he oversees its preparation.

CLEARING AND MARKING PZ

The PZCO directs and coordinates PZ preparation for safe operation of aircraft into, about, and out of the PZ. All obstacles

(that can be) are removed; those left are marked with red panels or by other means as appropriate.



The PZCO directs the marking of PZs. An effective method is to name the PZ by color and mark it accordingly by the color (smoke, light, or marker) that directs where aircraft will land. (If there is a danger that the enemy can detect the smoke or lights, then they are not used.)

Red is *never* used to mark an aircraft landing position. It is used to mark landing obstacles such as trees or stumps in the landing area.

Regardless of the type markers, the PZ is marked to indicate where aircraft are to land and coincides with the selected PZ aircraft formation.

LOADING FORMATION AND APPROACH

The PZCO, working with the AMC, selects/coordinates aircraft landing formations (app C) and approach headings. This information is entered on the airmovement table. Flight formations in the PZs are used to facilitate loading. They may be dictated by the number and type aircraft and the configuration and size of

the PZs. (Aircraft formations are standard, but may be modified to meet deployment requirements.) If possible, PZ formations should be the same as the formation that will be used in the LZ. The airmovement table below reflects a staggered trail left (S/L) formation for both the PZ and LZ.

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

(Classification)

Copy No _____ of _____ Copies
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P - Primary
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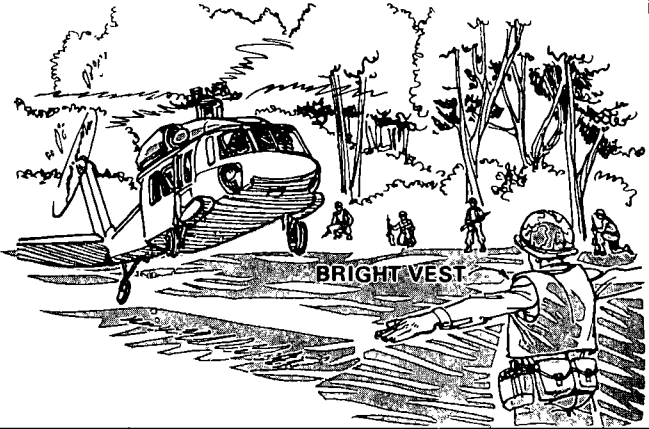
AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
					GREEN S/L ALTN YELLOW					GREEN S/L ALTN YELLOW		

2 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

MARKING THE PZ

Personnel wearing prearranged colors may also mark the PZs. The following clothing and equipment can be colored for recognition:

- Vest.
- Jacket.
- Helmet liner.
- Camouflage cover.
- Signal panel.



An effective method is to have several individuals in each unit paint and carry an extra camouflage cover. The colored covers, when displayed, indicate where the lead aircraft lands.

MOVEMENT TO PZ

Ground and aviation unit movement to the PZ is scheduled so that only the troops to be loaded and the helicopters designated to be loaded in a specific lift arrive at the PZ at (about) the same time. This prevents congestion, preserves security, and reduces vulnerability to enemy actions on the PZ.

To coordinate the movement of units to the PZ, the PZCO does the following:

***Selects troop assembly areas, holding areas, and routes of movement.** A **holding area** is located close to the PZ. It is used only when the **assembly area** is some distance away and does not allow timely movement to the PZ.*

***Identifies flight routes** used by arriving aircraft to get from their point of origin to the PZ.*

***Determines movement time** of ground and aviation units to PZ.*

***Specifies arrival time(s)** and sees that movement of units remains on schedule.*

AIRLOADING TABLE

At company and lower levels, the airloading table (app B) assigns a specific, chalk-numbered aircraft to carry personnel and major items of equipment or supplies to the objective area.

The airloading table is not only an accountability tool, it is annotated with the load to be bumped. It is also used as a loading manifest for each aircraft. However, time often does not permit detailed preparation of the airloading table.

When time is a factor, the table can be put on a sheet of paper from a squad leader's notebook. It should list soldiers (by name) and equipment loaded on aircraft identified

by load (aircraft) tail numbers. These lists are left with a specified representative in the rear area for consolidation or exchange between aircraft troop commanders (senior person in each aircraft load). This procedure insures that if an aircraft is lost a list of personnel and equipment on board is available.

During preparation of the loading tables, unit leaders at all levels attempt to maintain the following:

***Tactical integrity of units.** When planning loads for the airmobile operation, fire teams and squads are loaded intact on the same aircraft, and platoons in the same serial. This insures integrity as a fighting unit upon landing. The commander's goal is to load his unit so that unit integrity is maintained at every level.*

***Self-sufficiency loads.** Each unit load is functional within itself (whenever possible).*

Every towed load is accompanied by its prime mover.

Crews are loaded with their vehicle or weapon.

Component parts accompany the major items of equipment.

Ammunition is carried with the weapon.

Sufficient personnel are on board to unload cargo carried.

***Tactical cross-loading.** Loads should be planned so that **all leaders, or all crew-served weapons, are not loaded on the same aircraft.** Thus, if an aircraft is lost, the mission is not seriously hampered.*

For example, loading the platoon leader, platoon sergeant, and all the squad leaders on the same helicopter, or loading more than one machinegun team on the same aircraft, are violations of cross-loading.

Another consideration is to determine whether internal or external loading is the best delivery method for equipment and supplies. Helicopters loaded *internally* can fly faster and are more maneuverable, particularly when tactical terrain flying is necessary. *Externally* (sling) loaded helicopters fly slower and are less maneuverable; however, they can be loaded and unloaded more rapidly than internally loaded helicopters.

NOTE: Bulk supplies loaded externally (although loaded rapidly) can present problems if the supplies are destined for more than one location or unit.

Aircraft Bump Plan

Each aircraft load has a bump sequence designated on its airloading table (app B). Bump priority insures that necessary personnel and equipment arrive on time in the objective area. It specifies personnel and equipment that may be bumped and delivered later.

If all personnel within the load cannot be lifted, individuals must know who is to offload and in what sequence. This insures that key personnel are not bumped arbitrarily. Also, bump sequence is designated for aircraft within each serial or flight. This sequence is listed on the airmovement table.

This insures that key aircraft loads are not left in the PZ. When an aircraft within a serial or flight cannot lift-off, and key personnel are onboard, they offload and reboard another aircraft which has priority.

Aircraft Bump-and-Straggler Control

A PZ bump-and-straggler collection point is specified by company or larger units and manned (normally by one man). Personnel not moved as planned report to this location (near the PZCO). They are accounted for, regrouped, and rescheduled (by the PZCO) for delivery to appropriate LZs.

LIFTS, SERIALS, AND LOADS

To maximize operational control, aviation assets are designated into lifts, serials, and loads.

Lifts

A lift is one sortie of all aircraft (cargo and utility) assigned a mission to move troops and/or equipment. That is, each time all assigned aircraft pick up troops and/or equipment and set them down in the LZ, one lift is completed. (The return trip to the PZ is not a lift because there are no troops or equipment aboard.) The second lift is completed when all lift aircraft place their second load in the LZ.

Serials

There may be times when a lift is too large to fly as a single unit. In such cases, the lift is organized into a number of serials. A serial is a tactical grouping of two or more aircraft under the control of a serial commander (aviator), and separated from other tactical groupings within the lift by time or space. Serials may be necessary to maintain effective control of aviation assets.

For example, if nap-of-the-earth (NOE) flight is used, it would be virtually impossible to control 16 aircraft as a single increment; however, a 16-aircraft lift with 4 serials of 4 aircraft each could be controlled.

Serials may also be required when the capacity of available PZs or LZs is limited. If there is a lift of 16 aircraft and available PZs/LZs will accommodate only 4 aircraft, it is best to organize into 4 serials of 4 aircraft each.

Serials are employed to take advantage of available flight routes. If, from the PZs to the LZs, there are several acceptable flight routes, the AMTF commander may choose to employ serials to avoid concentrating his force along one flight route. If the commander wants all his forces to land

simultaneously in a single LZ, he does so by having the serials converge at a common RP before landing. With a lift of 16 aircraft and 4 available flight routes, the AMTF commander could use 4 serials of 4 aircraft each. Each serial would use a different flight route. Each time there is a new lift, a new series (of serials) begins.

For example, in lift 1, there are serials 1 through 4; in lift 2, serials again start with 1.

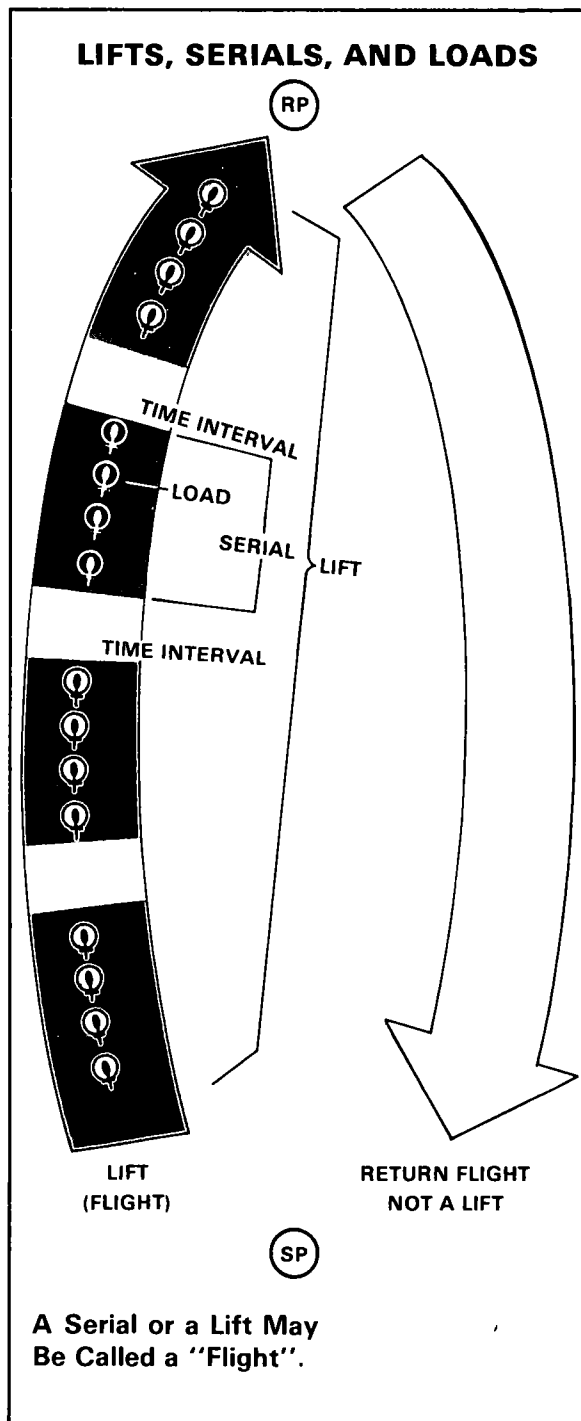
Loads

Within each lift, there is also a specific number of loads. A load is personnel and/or equipment designated to be moved by a specific aircraft. When planning the air-movement, each aircraft within the lift is termed a load.

For example, within a lift of 10, there are aircraft loads 1 through 10. For each lift thereafter, there will also be loads 1 through 10. Each aircraft is accounted for within each lift.

An aircraft load may also be referred to as a "chalk load," "chalk number," or a "chalk." Loads also must be designated within serials just as they are within lifts. Counting within the serials is continuous up to the total number of aircraft in the lift.

For example, in a lift of 16 aircraft: in lift 1, serial 1, there may be loads 1 through 4. In lift 1, serial 2, there may be loads 5 through 8. In lift 1, serial 3, there may be loads 9 through 12. Finally, in lift 1, serial 4, there may be loads 13 through 16.



AIRCRAFT LOAD INFORMATION

These three elements on the air-movement table (lift, serial, load) collectively designate the specific aircraft that are used to move a ground unit. A term that is inclusive of lift and serial is a **flight**. A flight is two or more aircraft

directed by a single aviator or a flight leader. Therefore, a lift may be referred to as a flight, as may a serial. "Flight" is not used in an airmovement document; it is used in referring to aviation resources (a flight of four).

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

(Classification)

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P - Primary
A - Alternate

AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
		1	1	1-4	GREEN S/L ALTN YELLOW					GREEN S/L ALTN YELLOW		BUMP 4, 7, 10, 15*
			2	5-8								
			3	9-12	YELLOW S/L					GREEN S/L		
			4	13-16								
		2	1	1-4	WHITE S/R					GREEN S/R		BUMP 4, 8, 12, 16
			2	5-8								
			3	9-12								
			4	13-16								

3 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

*NOTE: Aircraft bump sequence is shown under the remarks section of the airmovement table. The aircraft to be bumped first is listed first. Other aircraft to be bumped, if necessary, are listed in the sequence they are to be bumped. For

example: the remarks section reflects BUMP 4, 7, 10, and 15. If one aircraft load has to be bumped, it will be load 4. If four loads have to be bumped, loads 4, 7, 10 and 15 (in that order) will be bumped.

SEQUENCE OF DEPARTURE

The sequence of departure from PZs is based on the mission to be accomplished by each subordinate unit upon landing.

Unit priorities are based on the sequence of arrival at their LZs. Units are scheduled

to depart (in order) based on en route time to the LZ.

For example, if Company A is to land first (at H-hour) and Company B second (at H + 5), and Company B is 15 minutes farther (in flight time) from the LZ, it may depart the PZ before Company A.

Section III. AIRMOVEMENT PHASE

PLANNING

The airmovement phase is developed to support the landing phase. It consists of selecting a flight route(s); preparing the flight route(s); and obtaining information concerning flight formations, altitudes, speeds, and ATC procedures.

Plan development is the responsibility of the AMTF. It is developed in coordination with the AMC, or his representative, who provides technical assistance and recommendations.

In locating SPs and RPs, the following considerations apply:

Locate 3 to 5 kilometers from PZs and LZs respectively. This allows 2 to 3 minutes flying time for coordination of the flight's en route procedures.

Locate according to weather, obstacles, and enemy positions.

Locate to facilitate lift-off and landing into the wind by the best flight path.

Locate on features easily identifiable from the air.

DEVELOPMENT OF TENTATIVE FLIGHT ROUTES

Tentative flight routes are developed to control, protect, and sequence aircraft movement. Careful consideration is given to the terrain and enemy forces. The AMTF S2, working with the AMC, assists the TF commander in developing flight routes. The basic methods of developing tentative flight routes is by map study, considering the locations of friendly units, enemy dispositions and air defense systems, and PZ/LZs. The flight route consists of an SP, RP, and a flight path between the SP and RP.

DESIGNATION OF SP AND RP

The first step is to identify tentative SPs and RPs. The distance from the PZ to the SP determines the flight time and allows aircraft to get into the en route formation and gain operational altitude after lift-off. Flight leaders adjust the flight's speed to arrive over the SP at the prescribed time (per the airmovement table). Speed is adjusted en route to arrive at the RP at the prescribed time. The distance from the RP to the LZ allows flight leaders to select the route to the LZ, stage the landing formation, and enter landing traffic patterns.

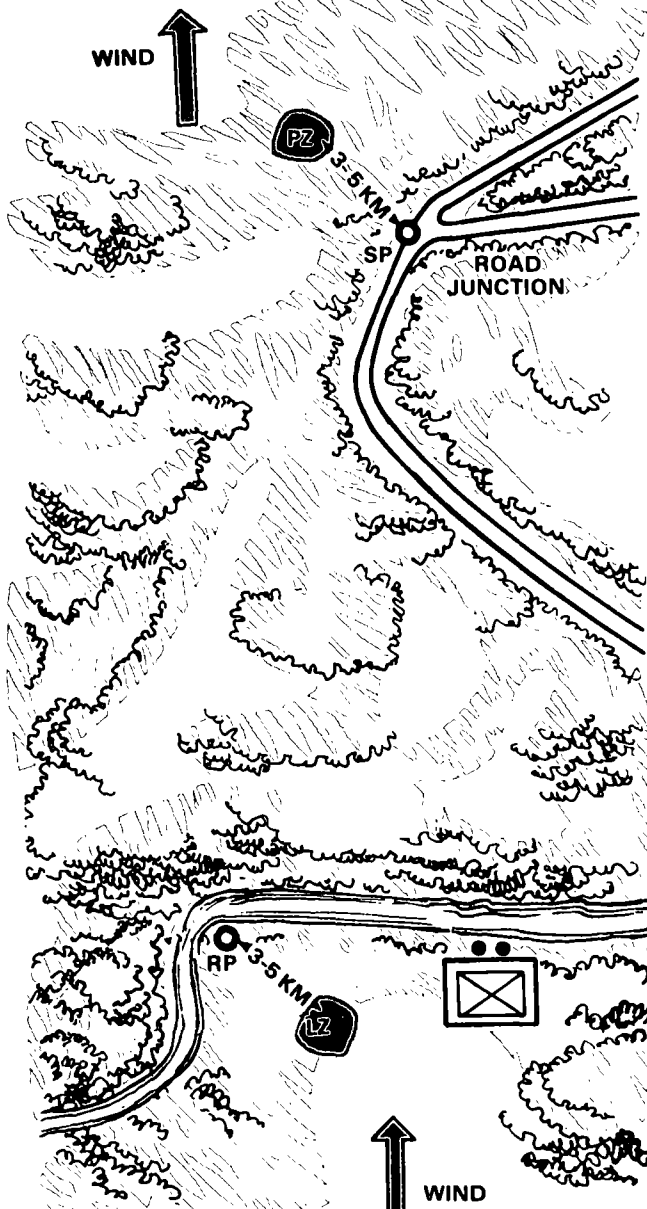
START POINT AND RELEASE POINT

In this situation, the SP is within 3 to 5 kilometers of the PZ. It provides sufficient air maneuver space for helicopters to arrive at the SP in the prescribed en route formation at the proper airspeed.

The SP is located at a recognizable topographic feature for ease of identification. It facilitates lift-off from the PZ and heading into the wind. It is located to avoid known flight obstacles and enemy locations.

The RP is also 3 to 5 kilometers from the designated LZ. It is used as the final checkpoint for coordination of landing instructions and lifting or shifting of preparatory fires.

The distance from RP and the LZ is used by helicopter pilots to shift into landing formation, reduce speed, and land on their assigned LZ. The RP is also located at a recognizable topographic feature and avoids obstacles and enemy locations.



The next step in developing tentative flight routes is to select a tentative route between the SP and RP.

DEVELOPMENT OF FLIGHT ROUTES

Flight routes are developed based on tactical and technical factors. It may be necessary for a route to pass through an adjacent unit's sector. When that is the case, approval from that unit is obtained and coordination is made. Regardless of route direction or location, certain criteria are considered.

Seldom are all characteristics present in any one situation; one or more may have to be omitted. Flight routes:

Are as short as possible, consistent with other considerations.

Avoid turns in excess of 45 degrees, when formation flying is required, to facilitate control of the aircraft formation.

Provide concealment from enemy observation, direct fire weapons, and radar, if possible.

Provide cover when terrain permits, placing terrain mass and/or vegetation between the enemy and the aircraft.

Provide for ease of navigation (day or night).

Avoid masking friendly fires, particularly supporting artillery.

Avoid known enemy units and air defense positions.

Avoid overflight of built-up areas.

FLIGHT CORRIDOR

When there is competition for airspace, it may be necessary to modify the flight route(s) and designate a flight corridor(s). The corridor reserves airspace around a flight route for AMTF use, and prevents artillery, TACAIR, and other elements from firing or flying through when it is in use.

Authority to establish a flight corridor is obtained from the brigade/division commander. Designated flight corridors are coordinated through appropriate artillery and supporting air channels. This insures that airspace within the corridors is not violated.

The corridor begins as a flight route and is then modified as required. The size of corridors vary. Normally they extend 200 to 300 meters on either side of the designated flight route, and 500 feet above and below the route flight altitude.

Helicopter formations operating at terrain flight (low) altitudes do not require minimum altitude corridor designations. The upper air limit of the corridor may vary and would be specified by the headquarters establishing it.

If it is necessary to restrict the operational area to only those aircraft directly involved in the airmobile operation, a restricted area can be established by the Brigade or Division Airspace Management Element (BAME, DAME).

FLIGHT AXIS

The flight axis is another variation of the flight route. It is a flight route that has width (like the corridor) but does not have airspace reserved to a specific altitude (as does the corridor).

The flight axis permits deviation laterally along the flight route but does not restrict the employment of other assets. It gives the AMC a choice in selecting en route formations and freedom to alter direction without coordinating a new flight route.

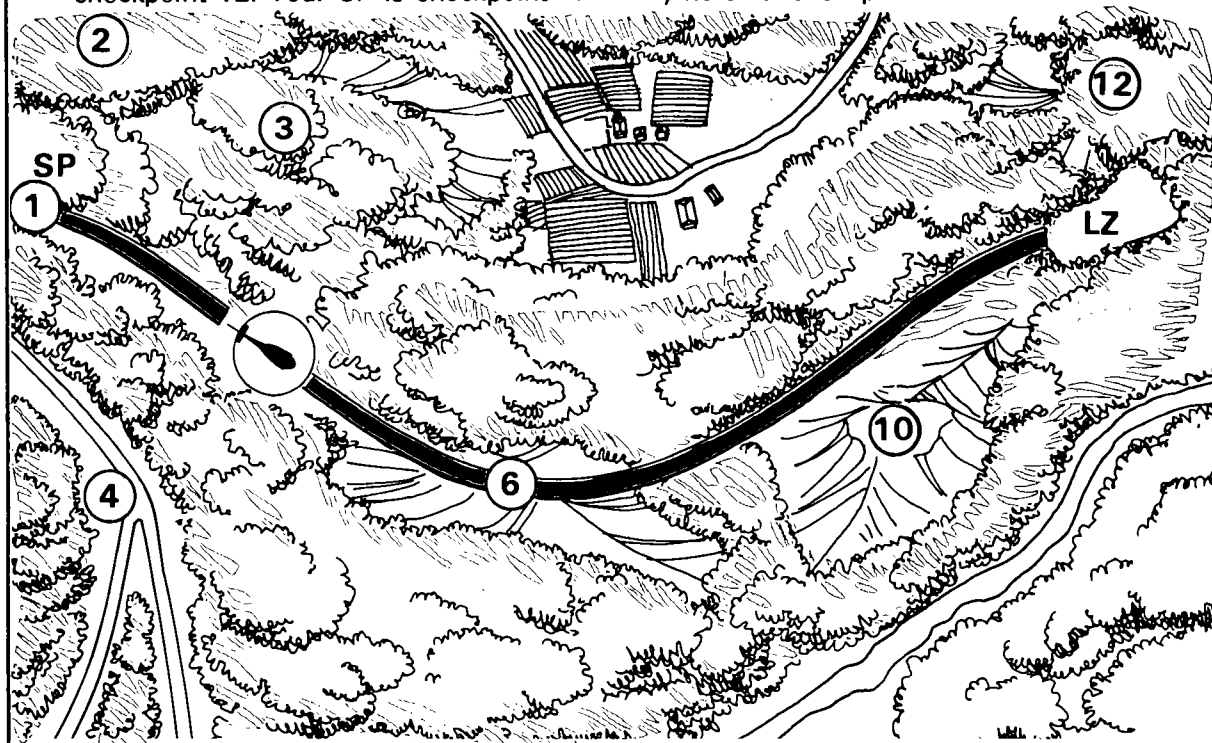
EXPEDIENT FLIGHT ROUTES

These routes are established with checkpoints. If time is not available to develop and disseminate PZs, LZs, and flight routes, the commander can maneuver aircraft along a route bounded by checkpoints.

EXPEDIENT FLIGHT ROUTE EXAMPLE

Example: "Lima Five Golf Two Three — fly to LZ one kilometer south of checkpoint 12. Your SP is checkpoint 1.

Remain south of checkpoint 3, stay north of checkpoint 4, fly over checkpoint 6, and fly north of checkpoint 10."



FLIGHT ROUTE CONTROL MEASURES

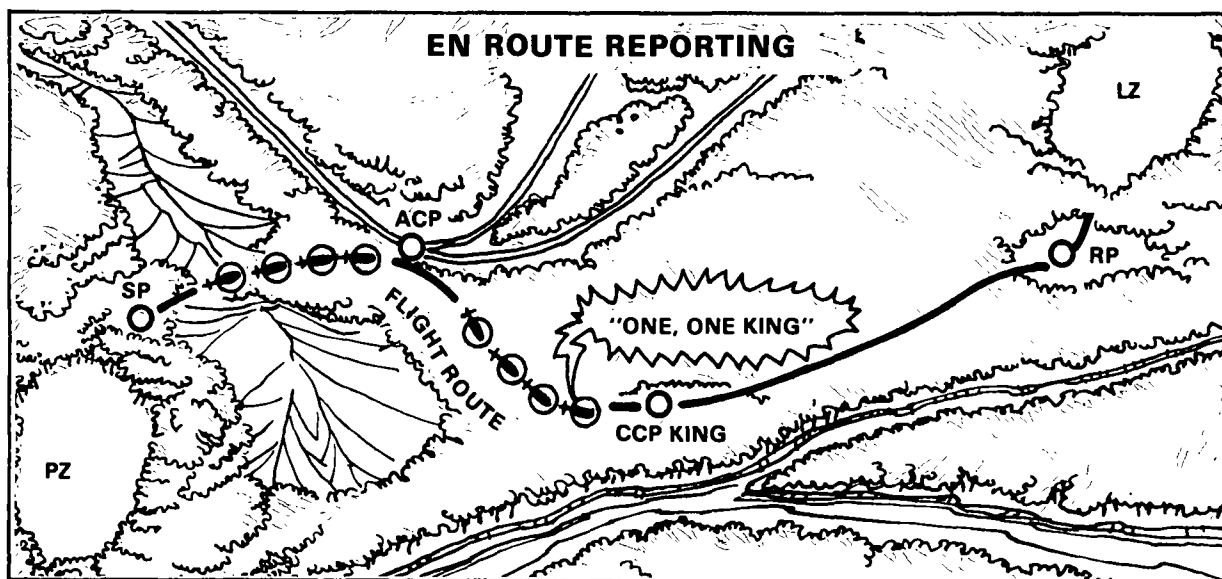
Control measures assist in navigation and provide control to insure the AMTF arrives in the LZ on time and in sequence. Control measures assist in timing the AMTF operation.

AIR CONTROL POINTS

ACPs provide flight direction en route and designate each point where the flight route changes direction. They include topographic features easily identifiable from the air and/or points marked by electronic navigational control aids. A route may have as many ACPs to assist in controlling airmovement as the AMC desires. SPs and RPs are air control points.

COMMUNICATION CONTROL POINT (CCP)

An ACP may be further designated as a CCP. A CCP is a point along the flight route at which serial commanders report to the AMC. Radio transmissions should be made only when absolutely necessary. If a report is required, the transmission should be short. This is possible by using codes. For example, this short radio transmission, "One, One King," could mean that the first serial of lift 1 is crossing CCP King.



DESIGNATION OF ROUTES

Once tentative flight routes are identified, they are designated for use by each unit. When large groups of aircraft are employed, dispersion is achieved by using multiple routes with a serial using each route. However, with large serials it is often necessary to use fewer routes, or even a single route, in order to concentrate available supporting fire. Also, the number of alternate and return routes may be limited.

From the flight routes developed, the S3/AMTF commander (aided by the AMC) designates primary, alternate, and return

routes to be used by each subordinate unit. When selecting routes, the following factors are considered:

Interference with ground action. *Overflying ground elements may interfere with their supporting fire. Flight routes should be selected that are clear of the gun-target line between the ground unit and supporting weapons.*

Support of the landing plan. *To reduce vulnerability of the airmobile force, the AMTF commander selects flight routes that facilitate rapid approach, landing, and departure from selected LZs.*

Enemy ground and air capabilities. *Selected flight routes should make maximum use of terrain, cover, and concealment to minimize the effects of enemy observation and target acquisition.*

Available fire support. *Flight routes should allow support from all available resources.*

Available air cover. *Flight routes should be identified in order to provide air cover for friendly forces en route.*

Weather conditions. *The flight routes should remain usable based on prevailing weather during execution of the airmobile operation.*

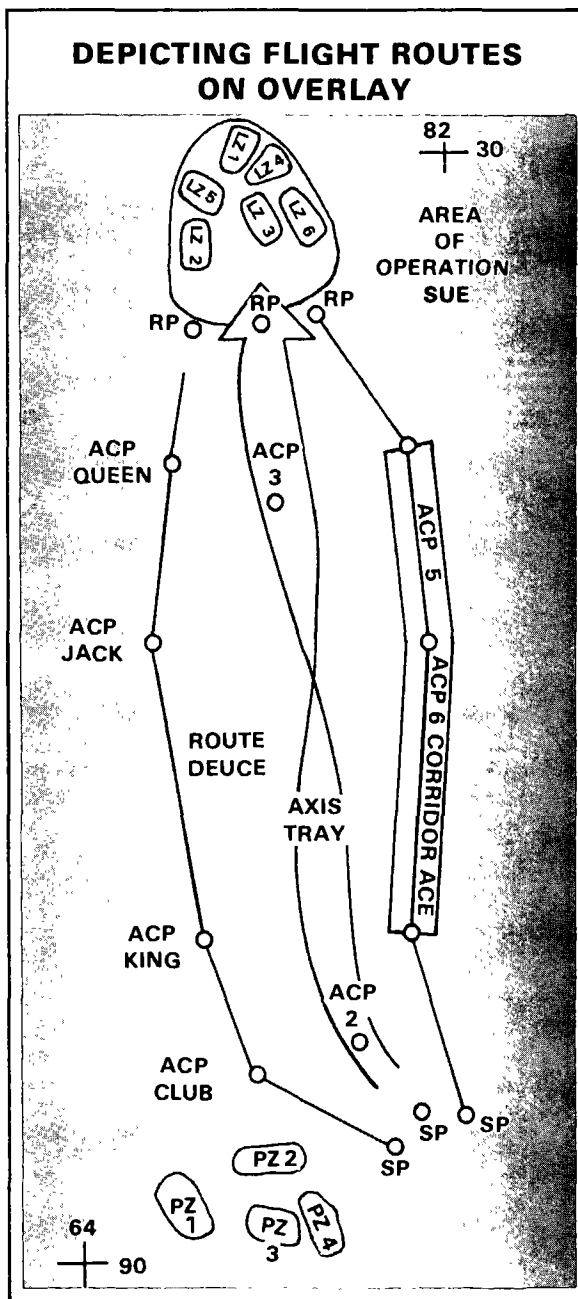
Terrain. *Flight routes should use terrain to maximum advantage to reduce vulnerability of the aircraft formations.*

Time (distance) from PZ to LZ. *Flight routes should be as short as possible to reduce flying time.*

DISSEMINATION OF ROUTE INFORMATION

Maps or overlays containing flight route information are prepared at AMTF head-

quarters and disseminated to subordinate and supporting units. (Overlays are often used.) Flight routes and corridors are designated by a letter, number, or word.



FLIGHT ROUTES (REMARKS) ON AIRMOVEMENT TABLE

The airmovement table also lists each unit's primary, alternate, and return routes. Aircraft should use a different route to return from the LZ. However, the commander may feel that he has deceived

the enemy (as to his intentions) and that movement along the primary route was undetected. Thus, he may decide to return along the primary flight route.

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-87
Time Zone Used Throughout the Order: ALPHA

(Classification)

Copy No. _____ of _____ Copies
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P - Primary
A - Alternate

AVN UNIT	LIFTED UNIT	LIFT	SER- IAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L ALTN YELLOW					GREEN S/L ALTN YELLOW		BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8								
			3	9-12	YELLOW S/L					GREEN S/L		
			4	13-16								
	B	2	1	1-4	WHITE S/R					GREEN S/R		BUMP 4, 8, 12, 16 FLT RT P-HAWK A-BAT
			2	5-8								
			3	9-12								
			4	13-16								

4 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE
HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

EN ROUTE FORMATIONS

The flight's formation is dictated by terrain, enemy situation, and the flight leader's degree of control. Regardless of the specific formation, aircraft are staggered and the distance between them varies according to the terrain being crossed. The AMC/flight leader selects the en route formation. The aircraft land (on the PZ/LZ) in the formation specified by the airmovement table. (Pickup Zone and Landing Zone Columns, Airmovement Table.)

TERRAIN FLIGHT METHODS

A specific en route flight altitude is not designated. Pilots use three terrain flight methods as required by the mission.

NAP-OF-THE-EARTH FLIGHT

The pilot flies as close to the earth's surface as obstacles permit while following the contours of the earth. He uses a wavering and unpredictable route within a preplanned corridor. He remains oriented along the general axis of movement to take advantage of concealment (avoiding enemy detection, observation, and firepower).

CONTOUR FLIGHT

The pilot flies at low altitude conforming generally to the contours of the earth. The flight is characterized by varying altitudes and constant airspeed.

LOW LEVEL FLIGHT

The pilot flies at low altitude to avoid or minimize detection or observation. The route is preselected and conforms generally to a straight line and constant altitude above the terrain.

FACTORS AFFECTING FLIGHT ALTITUDE

The AMC may specify the flight method for specific portions of the route based on several factors. The factors affecting flight altitude include:

- *Threat.* The greater the Threat air defense, the lower the flight altitude.
- *Terrain.* Aircraft must clear all terrain obstacles and still reduce exposure to air defense weapons. This is one of the primary flight altitude determinants.

- *Navigation.* It is usually easier to navigate at higher altitudes, but the risk of detection by the enemy is greater.

- *Weather.* Ground fog or haze requires higher altitude whereas a low ceiling requires lower altitude.

- *Flight distance.* If the distance is short, the flight does not take time to climb to a high altitude.

- *Need for surprise.* Surprise is more likely using low altitude.

- *Pilot fatigue.* Low altitude flying tires the pilot. NOE flight is not used if the PZ/LZ distance is great and the air defense threat does not prevent using other methods.

SUPPORTING FIRES

Fires along the flight route aid aircraft flying past areas of known or suspected enemy positions. These fires should be intense and of short duration due to aircraft speed past specific locations. They are planned and scheduled at times when flights are endangered.

Fire plans cover the PZs, flight routes, and LZs. Fire support plans include suppression of enemy air defense systems and smoke to protect formations from enemy detection. Plans should insure that friendly fire support elements do not use ordnance that obscures pilot vision.

All available fire support is used to suppress and/or destroy enemy weapons. TACAIR and artillery provide fire support. Attack helicopters provide security and overwatch en route to the LZ.

Support may consist of smoke, chaff (air-dropped, shredded aluminum foil to foul radar), or other countermeasures for suppressing enemy air defense systems.

Oncall fires are planned along the flight route to insure rapid adjustment on targets of opportunity.

AIRMOVEMENT TIMING

A successful airmobile operation is a sequence of actions carefully planned, time-phased, and executed.

The basis for timing is the time when the first aircraft in the first lift of the operation is to touch down on the LZ. It is referred to as H-hour. All times in airmobile operations are referenced from H-hour (Landing Time Column, Airmovement Table). If delays are encountered due to weather or aircraft delays, the commander announces a new H-hour.

LANDING TIME

ANNEX 8 (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

(Classification)

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AVN UNIT	LIFTED UNIT	LIFT	SER- IAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L ALTN YELLOW					GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8								
			3	9-12	YELLOW S/L					GREEN S/L		
			4	13-16								
	B	2	1	1-4	WHITE S/R					GREEN S/R		BUMP 4, 8, 12, 16 FLT RT P-HAWK A-BAT
			2	5-8								
			3	9-12								
			4	13-16								

5 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE
HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

Normal distances for SPs and RPs from the PZs and LZs respectively, are from 3 to 5 kilometers. Planning time for navigating these distances is 2 to 3 minutes. If the SP/RP is 3 kilometers from the PZ/LZ, flight time for that distance is 2 minutes. Based on these figures, in order for the first aircraft to land in the LZ at H-hour, it must reach the RP at H-2 minutes (RP Time Column, Airmovement Table).

RELEASE POINT TIME												
ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67 Time Zone Used Throughout the Order: ALPHA								(Classification)		Copy No _____ of _____ Copies Hqs. 1 Bn, 67th Inf 101500 Jan 8		
P - Primary A - Alternate												
AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L ALTN YELLOW				H-2	GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8								
			3	9-12	YELLOW S/L					GREEN S/L		
			4	13-16								
	B	2	1	1-4	WHITE S/R					GREEN S/R		BUMP 4, 8, 12, 16 FLT RT P-HAWK A-BAT
			2	5-8								
			3	9-12								
			4	13-16								

6 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

FLIGHT TIME

The following example explains how to compute the time required to cover the

distance from the SP to the RP. These times are computed for the entire length of the flight route from the SP to the RP. The length of each of the flight routes is measured so that en route times can be computed.

Flight time is computed using this formula:

$$T = \frac{D \times 60}{S \times 1.84}$$

T = Time in minutes.

D = Distance in kilometers (km).

S = Groundspeed in knots (AMC provides this by computing airspeed and converting it to groundspeed).

NOTE: The figure 60 used in the formula converts hours to minutes. The figure 1.84 converts knots to kilometers per hour. A fraction of a minute is rounded to the next higher minute.

ROUND UP TO NEXT HIGHER WHOLE NUMBER

The following is an example of how the formula is to be used:

The distance of the flight route between the SP and RP is 14 kilometers; average groundspeed is 60 knots.

Flight Route Time	{	$TIME = \frac{14 \times 60}{60 \times 1.84}$
		$TIME = \frac{840}{110.4}$
		TIME = 7.6 minutes.
Rounded to Next Higher Minute	{	TIME = 8 minutes.

LIFT-OFF TIME/SP TIME

The purpose of figuring these times is to determine what time lift-off must be made in order to meet the LZ time. The total flight route time is determined by adding the time to fly from the SP to the RP to the time to fly from the RP to the LZ. In the preceding example, flight route time was determined to be 8 minutes. The flight time from the RP to the LZ is 2 minutes. In this case, SP time would be H-10 arrived at as follows:

RP time = H-2 (2 minutes for RP to LZ).

SP time = H-10 (8 minutes flight route time plus 2 minutes from RP to LZ).

To determine the lift-off time, add the time between PZ and SP. Continuing the example, if time between PZ and SP is 2 minutes the —

RP time = H-2.

SP time = H-10.

Lift-off time = H-12 (this includes the 2 minutes from PZ to SP).

All times (lift-off, SP, and landing) are recorded in the proper columns of the airmovement table.

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

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AVN UNIT	LIFTED UNIT	LIFT	SER. IAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L ALTN YELLOW		H-12	H-10	H-2	GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8								
			3	9-12	YELLOW S/L					GREEN S/L		
			4	13-16								
	B	2	1	1-4	WHITE S/R					GREEN S/R		BUMP 4, 8, 12, 16 FLT RT P-HAWK A-BAT
			2	5-8								
			3	9-12								
			4	13-16								

7 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

LOADING TIME

Loading times vary with each unit. It is the time required, prior to liftoff, to load the aircraft. Experience in airmobile operations determines this figure to a large extent. Other significant factors are the type unit loading and visibility conditions. For example, combat support company (CSC) elements require more time to load than do maneuver units, due to the weight and bulk of CSC weapons. Limited visibility

periods require more loading time. Once loading time is determined, it is added to the previously computed times.

If a unit requires 4 minutes to load, in order to meet the lift-off time of H-12, it begins loading at H-16 minutes. (Loading Time and Lift-off Time Columns, Airmovement Table.)

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

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AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L	H-16	H-12	H-10	H-2	GREEN S/L	H-HOUR	BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8	ALTN YELLOW	H-15	H-11	H-9	H-1	ALTN YELLOW	H+1	
			3	9-12	YELLOW S/L	H-14	H-10	H-8	H	GREEN S/L	H+2	
			4	13-16		H-13	H-9	H-7	H+1		H+3	
	B	2	1	1-4	WHITE S/R					GREEN S/R		BUMP 4, 8, 12, 16 FLT RT P-HAWK A-BAT
			2	5-8								
			3 4	9-12 13-16								

8 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

The aviation element and the ground element begin movement to the PZ to start loading at the prescribed time.

With the airmovement time schedule completed for the initial element, then the airmovement table is completed by building on the initial times.

LOADING TIME, SECOND LIFT

The first lift is planned working back from H-hour. Planning for the second lift is forward from H-hour since the en route times are established. However, prior to annotating the airmovement time for the second element, the time required for the aircraft to return from the LZ to the PZ (along the return route) is computed. This is done employing the same method used in computing initial flight time. For example, if it is 2 minutes from the PZ to the SP, 2 minutes from the PZ to the SP, 2 minutes from the RP to the LZ, and 8 minutes en route, then once the aircraft have unloaded it takes 12 minutes to return to the PZ (Lift, Serial, Loads and Loading Time Columns, Airmovement Table).

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order: ALPHA

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AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L ALTN YELLOW	H-16	H-12	H-10	H-2	GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8		H-15	H-11	H-9	H-1		H+1	
			3	9-12	YELLOW S/L	H-14	H-10	H-8	H	GREEN S/L	H+2	
			4	13-16		H-13	H-9	H-7	H+1		H+3	
	B	2	1	1-4	WHITE S/R	H+12						

9 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

SECOND LIFT

If it takes 4 minutes to load the second lift, then the lift-off time is recorded as H+ 16 minutes. Subsequently, if it takes 2 minutes to get from PZ to SP, SP time is H+ 18. if the flight requires 10 minutes to get from SP to RP, RP time is H + 28 minutes.

Once again allow 2 minutes to transition from RP to the LZ; the landing time for the second element on its LZ is H+ 30 minutes. Subsequent times are all computed in the same manner (Landing Time Column, Airmovement Table).

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order. ALPHA

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AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
	A	1	1	1-4	GREEN S/L ALTN YELLOW	H-16	H-12	H-10	H-2	GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4, 7, 10, 15 FLT RT P-EAGLE A-HAWK
			2	5-8		H-15	H-11	H-9	H-1		H+1	
			3	9-12	YELLOW S/L	H-14	H-10	H-8	H	GREEN S/L	H+2	
			4	13-16		H-13	H-9	H-7	H+1		H+3	
	B	2	1	1-4	WHITE S/R	H+12	H+16	H+18	H+28	GREEN S/R	H+30	BUMP 4, 8, 12, 16 FLT RT P-HAWK A-BAT
			2	5-8		H+13	H+17	H+19	H+29		H+31	
			3	9-12		H+14	H+18	H+20	H+30		H+32	
			4	13-16		H+15	H+19	H+21	H+31		H+33	

10 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

PLANNING FOR REFUELING

If the table is to be accurate throughout the operation, it also contains the times involved in aircraft refueling. For each refueling point, there should be a capability to refuel four or more aircraft simultaneously. One or more refueling points may be established. The AMC provides the time required to refuel and the number of refueling points available. These factors can be used to determine how long it will take to refuel.

Refueling is planned so that a flight completes refueling before the serial that is scheduled to be refueled last gets critically

low on fuel. If only a portion of the flight can be refueled at the forward arming and refueling point (FARP), the first serial might have to refuel as much as an hour before it needs refueling. The other serials continue the lift operation until it is their turn to refuel.

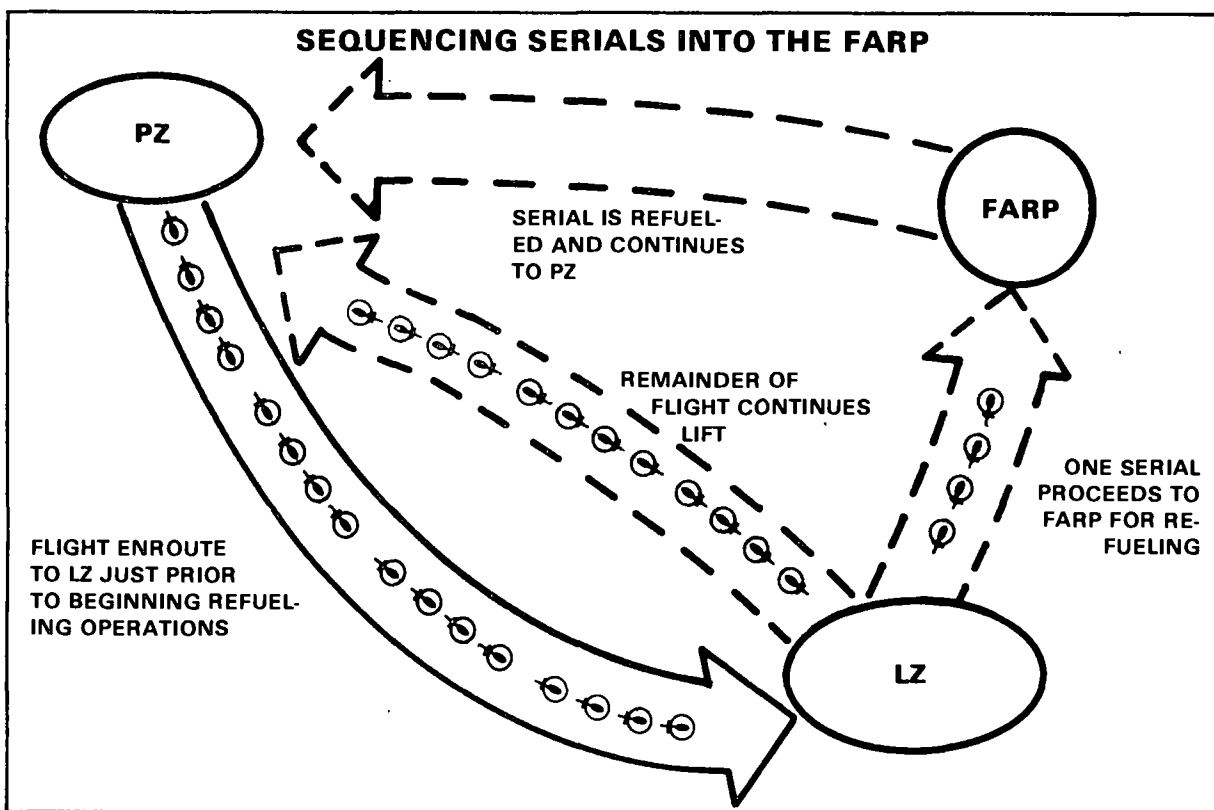
The plan should schedule refueling for only the number of aircraft that can be accommodated at one time, avoiding aircraft waiting at the FARP. This allows a smooth, continuous rotation of aircraft into and out of the FARP.

The number of aircraft that can refuel at one time is divided into the number of aircraft in the lift. The result is the number of separate trips to the FARP to refuel the entire lift one time. For example, a FARP with one refueling point can refuel 4 aircraft at a time. A flight of 16 aircraft can send 4 serials to the refuel site.

This result is multiplied by the time required for the aircraft to refuel. The answer gives the total time required to refuel one time. In the above case with 4 serials requiring 15 minutes each to refuel, it takes 1 hour to refuel the entire lift. (This time includes time for repositioning to the PZ.)

This figure is subtracted from the available flying time to determine at what point in the mission the refueling process must begin.

The physical planning for refueling begins when the aircraft arrive in the PZ for loading. Once the plans are developed, refueling becomes a part of the table.



Given 16 aircraft and one FARP, the table reflects the following data (illustrated).

REFUELING												
ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67 Time Zone Used Throughout the Order: ALPHA						(Classification)		Copy No _____ of _____ Copies Hqs. 1 Bn, 67th Inf 101500 Jan 8				
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AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
1854	A	1	1	1-4	GREEN S/L ALTN YELLOW	H-16	H-12	H-10	H-2	GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4,7,10,15 FLT RT P-EAGLE A-HAWK
			2	5-8		H-15	H-11	H-9	H-1		H+1	
			3	9-12	YELLOW S/L	H-14	H-10	H-8	H	GREEN S/L	H+2	
			4	13-16		H-13	H-9	H-7	H+1		H+3	
	B	2	1	1-4	WHITE S/R	H+12	H+16	H+18	H+28	GREEN S/R	H+30	BUMP 4,8,12,16 FLT RT P-HAWK A-BAT
			2	5-8		H+13	H+17	H+19	H+29		H+31	
			3	9-12		H+14	H+18	H+20	H+30		H+32	
			4	13-16		H+15	H+19	H+21	H+31		H+33	
		2	1	1-4	FARP#1	H+40	REFUEL					FARP LOCATION-AS 382 641
CSC	CSC B B	3	1	5-8	PURPLE	H+46	H+49	H+52	H+60	PURPLE	H+62	BUMP 5,8,10 FLT RT P-OWL A-FALCON
			2	9-12	ALTN WHITE	H+47	H+50	H+53	H+61	ALTN WHITE	H+63	
			3	13-16		H+48	H+51	H+54	H+62		H+64	
			4	1-4		H+55	H+58	H+61	H+69		H+71	
		3	1	5-8	FARP#1	H+77	REFUEL					
	C	4	1	9-12	WHITE S/L	H+83	H+86	H+88	H+98	WHITE S/L	H+100	RELEASE TWO AIRCRAFT FLT RT P-HAWK A-CROW BUMP 4,8
			2	13-16	ALTN	H+84	H+87	H+89	H+99	ALTN	H+101	
			3	1-4	ORANGE	H+91	H+94	H+96	H+106	ORANGE	H+108	
			4	5-8		H+92	H+95	H+97	H+107		H+109	
		4	1	9-12	FARP#1	H+115	REFUEL					
	A	5	1	13-16	WHITE S/L	H+117	H+120	H+122	H+132		H+134	BUMP 15
			2	1-4	AMBER S/R	H+118	H+121	H+123	H+133	AMBER S/R	H+135	
			3	5-8		H+119	H+122	H+124	H+134		H+136	
			4	9-10		H+130	H+133	H+135	H+145		H+147	
		5	1	13-16	FARP#1	H+149	REFUEL					BUMP 10

(Classification)

11 NOW REFER TO CODE-NUMBERED AIRMOVEMENT TABLE (PAGE 4-41) TO SEE HOW THIS INFORMATION APPEARS IN ITS ENTIRETY.

Section IV. LANDING PHASE

The landing phase is developed concurrently with the ground phase plan. Concurrent planning is necessary since the availability and selection of PZs partially dictate the scheme of maneuver available in developing the ground tactical plan. The landing phase consists of the time, place, and sequence of AMTF arrival into the LZs to support the ground tactical plan.

SELECTION OF THE LANDING ZONE

Selection of LZs is critical. The LZ is selected by the TF commander or his S3 in coordination with the AMC or his liaison officer. Aviation personnel provide technical knowledge to determine suitability of a desired LZ. Primary and alternate LZs are selected for each unit from those developed by the S2.

While LZ criteria have already been identified, the following factors require additional emphasis:

Location. *It can be located on the objective, close by, or some distance away, depending on the mission, enemy, terrain, and time to complete the mission.*

Capacity. *The size will determine how much combat power can be landed at one time.*

Enemy disposition and capabilities. *Enemy air defenses and their capability to react to an AMTF landing nearby must be considered when selecting an LZ.*

Cover and concealment. *LZs are selected that deny enemy observation and acquisition of ground and air elements.*

Obstacles. *If possible, the AMTF should land on the enemy side of obstacles*

when attacking and use obstacles to protect LZs from the enemy. LZs must be free of obstacles.

Identification from the air. *LZs should be identifiable from the air.*

Approaches into and exits from the LZ. *Approaches and departures avoid continued flank exposure of aircraft flight to the enemy.*

Weather. *Reduced visibility or strong winds may preclude or limit the use of certain LZs.*

If there are options available in selecting LZs, the ones that best facilitate mission accomplishment are chosen. This choice involves whether to land on or near the objective, or land away from it and maneuver in force on the ground to the objective.

Factors considered in making that determination are:

Combat power. *This is the amount of firepower that can be introduced into the area early in the operation (usually dependent upon the number of aircraft employed and availability of suitable LZs).*

Enemy. *This includes enemy strength and disposition in and around the objective area, to include air defense systems.*

Surprise. *This is a mission goal and may be attained by careful use of terrain cover and concealment, darkness, or reduced visibility created by weather or smoke. Surprise is sometimes achieved by landing on the objective.*

Time. *Time that is available for mission accomplishment. Limited time to complete the mission generally favors landing on or near the objective.*

In addition to deciding where to land in relation to the objective, a decision is made to use a single or multiple LZ(s). Significant characteristics of each alternative are:

TYPES OF LZ

Single LZ

Allows concentration of combat power in one location (if LZ is large enough).

Makes it easier to control the operation.

Concentrates supporting fire for LZ preparation and support of ground elements in and around the LZ. Firepower is diffused if more than one LZ preparation is required.

Provides better security for subsequent lifts, after the initial lift.

Requires fewer attack helicopters to secure the flight.

Reduces the number of flight routes in the objective area, making it more difficult for enemy intelligence sources to detect the airmobile operation.

Centralizes any required resupply operations.

Concentrates efforts of limited pathfinder and engineer assets on one LZ.

Requires less planning and rehearsal time.

Multiple LZs

Avoid grouping a large portion of the force at one location and creating a lucrative target for enemy mortars, artillery, and CAS assets.

Allow rapid dispersal of ground elements to accomplish tasks in separate areas.

Force the enemy to fight in more than one direction which dilutes his combat power.

Reduce the possibility of troop congestion in the LZ.

Eliminate aircraft congestion in the LZ area.

Make it difficult for the enemy to determine the size of the airmobile force and the exact location of supporting weapons.

NOTE: If the objective is designated by a number, the LZ should be designated by a letter or code word to avoid confusion and preclude mixups. This avoids having an objective and LZ with the same designator, e.g., LZ 1 and Objective 1.

LZ FORMATIONS

Aircraft formations on the LZ should facilitate offloading and deployment for the assault. The number and type aircraft and the configuration and size of the LZ, may, however, dictate the formation. Because contact is expected in the LZ, elements are landed ready to go immediately into fire and maneuver (app C). The LZ formation is selected first. If possible, the PZ formation is the same. This provides troops a preview of the LZ and gives them an idea of where they will be located (upon landing) in relation to other elements. Battle drill, from the LZ formation to assault deployment, must be understood and practiced by units prior to departing the PZ.

FIRES IN THE LANDING AREA

Frequently, it is desirable to make the initial assault without preparatory fires in order to achieve tactical surprise. However, preparations are planned for each LZ so they can be quickly fired if needed.

Planned fires for airmobile operations should be intense with a high volume of fire in a short period of time to maximize surprise and shock effect. They are timed to end close to the first assault element's landing.

When developing fire plans, consideration is given to :

Deception. False preparations are fired into areas other than the objective area.

Loss of surprise. A preparation of long duration may reduce the possibility of surprise.

Availability of fire support. The fire support officer (FSO) considers assets that can fire a preparation and coordinates with the artillery battalion S3 to arrange the preparation. Preparations by tactical aircraft are requested through the forward air controller.

Significant targets. A known or suspected enemy force, regardless of size, warrants an LZ preparation.

Obstacles to landing and maneuver. Types of ordnance used in a preparation (artillery, bombs, napalm) can cause craters, tree blowdown, fires, and low LZ visibility.

Scheduling fires. Fires are scheduled to be lifted or shifted to coincide with arrival times of the aircraft formations.

Positive control measures. Control measures are established for lifting or shifting fires.

COMMENCEMENT OF OPERATION

KEY CONSIDERATIONS

Once the TF has landed and completed its consolidation, it operates much the same as any other infantry unit. There are several key differences that must be anticipated and planned.

The TF is vulnerable during landing. Troops should execute airmobile battle drill immediately upon dismounting the aircraft. This should be SOP for the unit. (See app C for discussion of battle drill.) If the LZ is not on the objective, unit integrity will have to be obtained before beginning the attack. Plans tell subelement leaders (e.g., platoon leaders) where to join their unit after clearing the LZ.

It is easy for leaders and troops to be disoriented when they land on the LZ, especially when the aircraft were supposed to land in one direction (e.g., north) and had to make a last-minute change and land in another direction (e.g., east). Leaders should maintain map orientation throughout the move. Aircrew members should immediately advise the ground leader when there is any change in landing plans. If leaders are mentally prepared to take aggressive action, it will be easier for them to maintain control of their troops and react to last-minute changes.

Initially, there may be no other friendly units in the area. The TF must be prepared to fight the enemy from any direction.

The speed and flexibility of an airmobile force allows the AMTF a greater variety of options in developing a scheme of maneuver.

If sufficient helicopter assets remain under the control of the AMTF during execution of the ground operation phase, one method of providing for a reserve is to task *each company to be prepared to provide a reserve force on order.* There will have to be enough PZs in the area so maneuver units can move quickly to them.

The fire support plan should provide for preparations in and around LZs (even though they might not be fired), fires in support of the scheme of maneuver, fires to

isolate the objective area, and oncall fires for targets of opportunity.

The LZ might be in range of supporting artillery while the objective is beyond that range. In that case, mortars could be brought on an early lift and provide indirect fire support for the movement to the objective and assault on it. A security force might be required for the mortars. Attack helicopter units may provide overwatch, and US Air Force aircraft may provide close air support.

Resupply, evacuation, and transportation are predominantly by air. The plan should include provision for any required resupply. Frequent and rapid displacement of AMTF support denies the enemy the time required to plan and coordinate an organized attack by a reaction force. To maintain that high degree of mobility, the AMTF travels light.

CHAPTER 5

CONDUCT OF AIRMOBILE OPERATIONS

Section I. GENERAL

The following sequence demonstrates the airmobile task force (AMTF) movement from the assembly area to the pickup zone (PZ) and on to the landing zone (LZ). Some steps may be deleted when not appropriate, or they may be accomplished concurrently with other steps (e.g., a holding area is not applicable to all operations).

Section II. MOVEMENT FROM ASSEMBLY AREA TO LANDING ZONE

The AMTF operation normally begins at the assembly area.

At the prescribed time, units begin movement to the holding area, via a route designated by the pickup zone control officer (PZCO), to arrive at a planned time.

The characteristics of a holding area include the following;

Must be covered and concealed.

Must be close to primary and alternate PZs.



Each unit commander notifies the PZCO (located at the PZ) of his unit's arrival in the holding area. In this area, the units are organized into loads/chalks according to the loading plan.

Each load has a designated aircraft troop commander (usually a noncommissioned officer [NCO], or an officer) responsible for briefing his troops and inspecting the load (app C). He insures that the load (chalk) is organized and ready to be loaded as planned.

Briefs personnel in his load according to the unit's movement standing operating procedure (SOP). As a minimum the briefing includes:

Loading procedures.

Use of safety belts.

In-flight procedures.

Offloading procedures.

Preflight safety inspection of soldiers.

Downed aircraft procedure.

INFANTRY TROOP MOVEMENT TO PZ

The aircraft troop commander should be briefed concerning the loading point (PZCO designated location where that chalk's aircraft will land) for his load at the primary and alternate PZs and the routes to those points.

The PZCO coordinates the arrival of aircraft and troops so that the troops arrive at their respective loading points just before the aircraft land.

On the PZCO's signal, aircraft loads move (by designated routes) from their holding area(s) to their loading points on the

PZ. The PZCO may use fieldphones, arm-and-hand signals, light signals, or (as a last resort) radio, to order helicopter loads to move to the PZ.

If the primary PZ cannot be used, the PZCO advises the unit commander to move to the alternate PZ.

NOTE: The enemy can detect any radio transmission, even if it is secure voice.

HELICOPTER MOVEMENT TO PZ

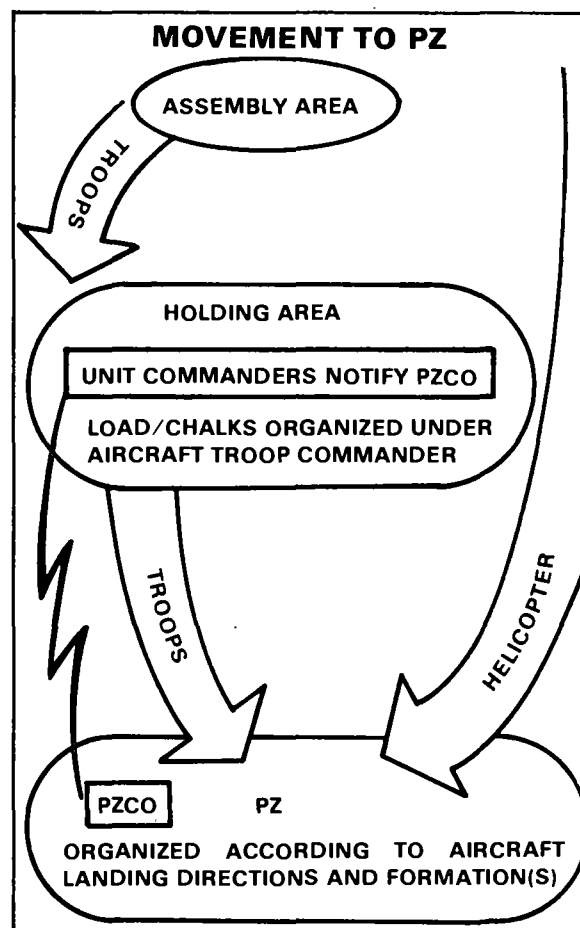
Aircraft begin movement to arrive at the PZ at the time listed on the airmovement table. The PZCO does not contact the aviation elements unless there is a PZ change.

During airmovement to the PZ, enemy antiaircraft or other fire may be encountered. For this reason, it may be a good idea to precede the lift formation with air cavalry teams. They attempt to locate and suppress enemy positions prior to the arrival of the formation. Air cavalry teams may also be employed on the flanks and to the rear of the formation. Attack helicopter/air cavalry teams will not normally land on the PZ. When the lift helicopters are to be on the ground for extended periods, the attack helicopter/air cavalry teams may occupy holding areas nearby.

The command-and-control helicopter may precede or accompany the lift to the PZ.

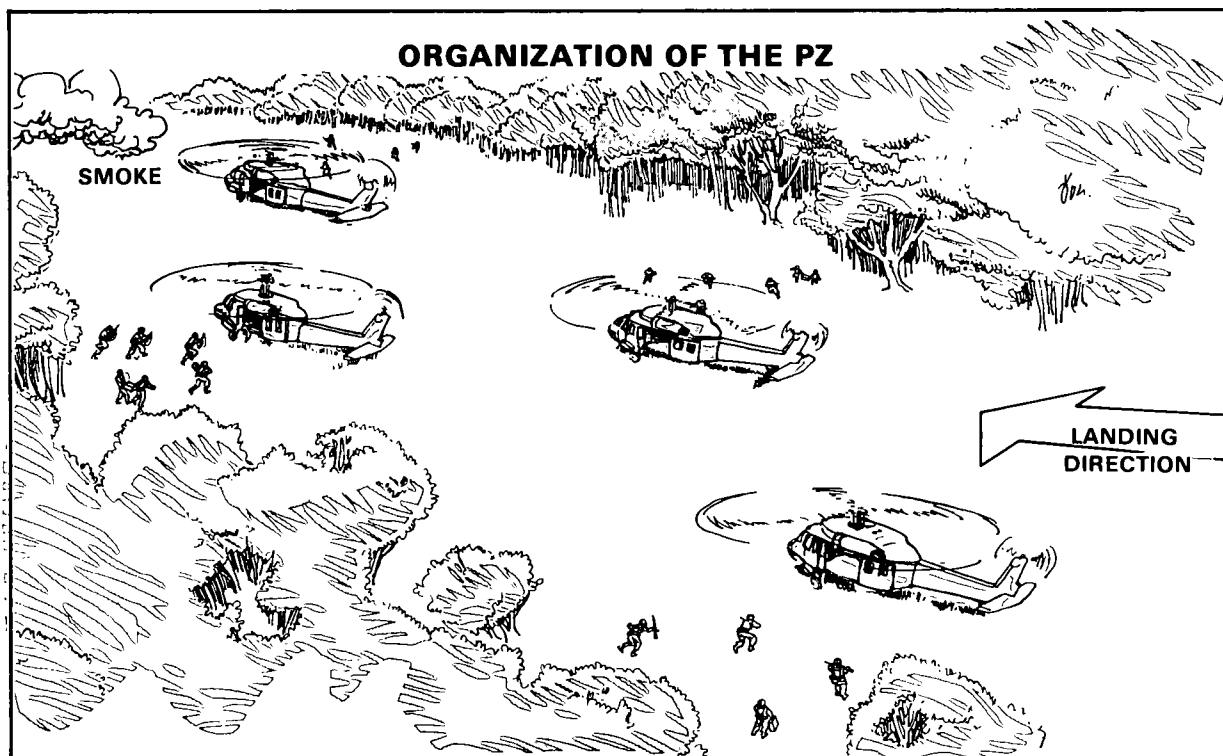
Strict radio discipline is maintained throughout the operation. The aircraft should not break radio silence unless absolutely necessary. Radio calls between aircraft are permitted only as a last resort when other signals are not appropriate.

The helicopters should use terrain flying techniques en route to the PZ.



ORGANIZATION OF THE PZ

The PZCO(s) insures that each PZ is laid out as directed in the plan to include landing directions and formation(s). For example, if the plan calls for landing to the west in a staggered trail formation with the lead aircraft landing on a spot marked by a smoke grenade, or panel markers, the PZ is laid out that way.



It is imperative that aviation elements arrive at the PZ in the formation mutually agreed upon for loading. This minimizes confusion during loading. The PZCO, or pathfinder element, is present in the PZ to assist in loading by insuring aircraft and personnel are in the proper location and formation at the correct time. If an aircraft (scheduled for the lift) is unable to complete its mission due to mechanical failure, the PZCO automatically implements the aircraft "bump" plan.

LIFTOFF FROM THE PZ

When the aircraft are loaded and ready for lift-off, the PZCO signals the flight leader using arm-and-hand signals. The flight leader may signal to other aircraft by turning on (or off) his navigation lights. For example, upon landing, the lights are turned on, and when they are turned off the flight lifts off. Members of the PZ control party may also relay the alert to lift off to aircraft in the rear of the formation.

Lift-off should be at the time prescribed in the airmovement table. This helps place the first aircraft of the first lift in the LZ at H-hour.

Lift-off may be by single aircraft or by serial. Under some conditions (dusty PZ, restricted PZ, or high density altitude and no wind), it is best to break serials into smaller increments. When possible, simultaneous lift-off is best for the following reasons:

It is easier for the attack helicopter company commander to plan his scheme of

maneuver and provide security en route for aircraft.

AMTF control is more positive.

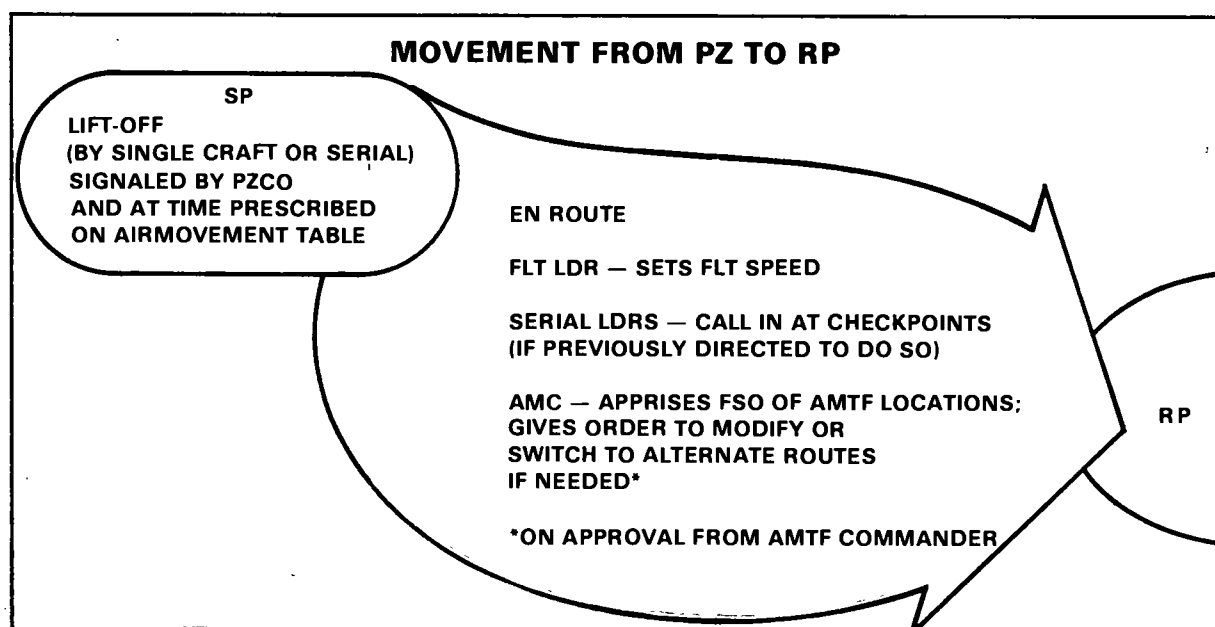
A prolonged lift-off may permit the enemy time to fire at the aircraft.

The flight leader adjusts the flight's speed and rate of climb so all elements form into the en route flight formation at the required altitude.

EN ROUTE TO THE LZ

The flight leader sets en route flight speed to insure the flight crosses the start point (SP) on time.

If directed in the order, serial leaders report (to the air mission commander [AMC]) on passing each communication checkpoint (CCP). En route radio calls by the flights are omitted if the airmovement table is followed. Calls are made only if the flight is late or if it is required to deviate from the plan.



The AMC insures that the fire support officer (FSO) is aware of the AMTF's location so fires can be placed on targets of opportunity or on enemy positions that threaten the task force (TF).

When a threat is encountered along the flight route, such as heavy enemy fire, the AMC gives the order (upon the AMTF commander's approval) to modify or switch to an alternate flight route. His radio traffic is brief when shifting aircraft to an alternate flight route. If the LZ is to be changed, the AMTF commander makes the decision and informs the AMC.

SECURITY

Air cavalry and attack helicopter units provide security for downed aircraft, route reconnaissance, and other assistance en route (as desired by the AMC).

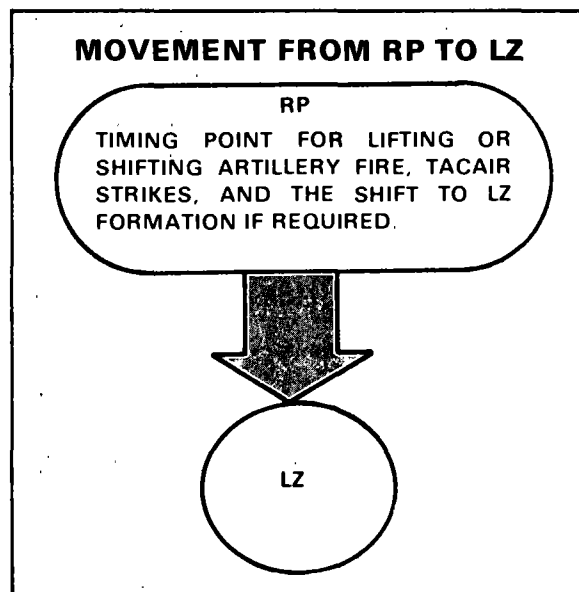
United States Air Force (USAF) aircraft may work with attack helicopter units to provide security to the flanks, front, and rear of the aircraft formation. When performing this role in a medium-to-high threat environment, specially equipped aircraft suppress or destroy surface-to-air missile sites and radar-directed guns. Other USAF aircraft may be used to selectively jam enemy radar and communication signals using jamming transmitters or other methods such as "chaff" (dropping shredded aluminum foil strips to foul radar). The A-10 ground attack aircraft may be with the flight formation, or may be on alert nearby or in planned orbits and support patterns to respond rapidly (app C, FM 17-50).

Indirect fire weapons provide suppressive fires along the flight routes as planned or as necessary.

If a lift aircraft emergency occurs (forced landing in an unsecure area), the aircraft commander (if time permits) switches his radio to the "guard channel" and transmits a "Mayday" in the clear. He announces his identification, heading, position, nature of emergency, and intentions. (The aircraft crew alerts passengers of the emergency and secures loose equipment.) The SOP for downed aircraft is then put into effect.

LANDING OPERATIONS

After passing the release point (RP), the serials proceed to assigned LZs. The RP crossing is used to time the lifting of artillery and close air support (CAS) strikes. The RP is also the point at which the aircraft shift to LZ formation, if a shift is required.



PREPARATORY FIRES

The LZ may be "softened up" by preparatory fires from available fire support.

Napalm and other incendiary ordnance are not normally used on the LZ and its immediate vicinity (just prior to landing), because foliage fire and smoke could endanger aircraft or hamper the mission.

EMPLOYMENT OF ATTACK HELICOPTER UNIT/TEAMS

Attack helicopter units/teams are employed in various roles during an LZ operation. They may:

- *Precede the lift element into the LZ (by a few minutes) for reconnaissance and/or to provide suppressive fires to prevent a time gap in LZ fires (provided by other support elements).*

- *Recommend last-minute changes regarding aircraft landing instructions.*

- *Provide area cover and neutralize known enemy positions, or provide security for lift aircraft while in the LZ area.*

NOTE: After the initial pass, attack helicopters may enter an overwatch flight pattern around the LZ.

ATTACK HELICOPTER TEAM LEADER

In addition to directing his attack helicopter team, the team leader is available as a command-and-control representative between the ground commander and the lift aircraft pilots arriving and departing the LZ.

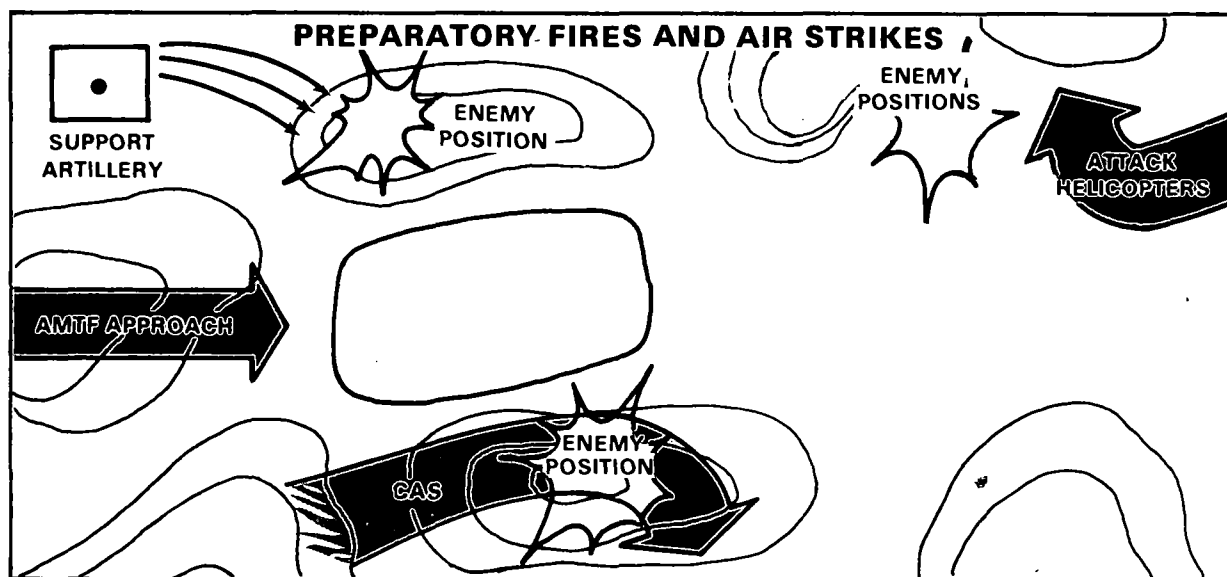
COMMAND AND CONTROL HELICOPTER

At the RP, the command-and-control helicopter moves into position (employing terrain flying) to observe and communicate with assault elements. To avoid enemy weapons, the pilot uses popup techniques to observe activity. After the assault force is established on the ground, the command-and-control helicopter moves, by terrain flying, to the area of the LZ.

SUPPORT FIRES

Because CAS station time is limited by fuel and enemy air defenses, the sequencing of support fire is carefully controlled by the FSO to obtain maximum, continuous support. If preparatory fires have been fired, they are normally shifted rather than lifted as the assault formation approaches.

One method of continuing assault fire support is to shift indirect fires to one flank, conduct a simultaneous airstrike on another flank, and use the attack helicopter teams to orient on the approach and departure routes. This technique requires precise timing and assault formation navigation to avoid flight paths of other aircraft and gun target lines of indirect fire weapons.



LANDING TECHNIQUES

The AMTF lands as planned unless the commander decides to abort or alter the landing due to last-minute changes in the tactical situation.

A simultaneous landing is usually the best method in order to place the maximum number of troops on the ground, in a given area, in the shortest possible time.

The operation is accomplished with a minimum number of lifts, each with the

maximum number of aircraft the LZ will accommodate. This reduces the exposure time of aircraft, maintains unit integrity, provides maximum combat power, and gives the enemy less time to react. When separate element landings are dictated because of LZ size, time intervals between elements are kept as short as possible. Ideal timing has an aircraft element landing immediately after the preceding element lifts off.

GROUND OPERATIONS AT THE LZ

Troops disembark rapidly (*they are most vulnerable at this time*) and prepare to carry out assigned missions.

If the ground force suffers casualties and they need to be evacuated (while the buildup of combat power is in progress), they are moved to a designated air evacuation location. This permits continuation of the lift and prompt evacuation of the wounded.

Offloading heavy internal loads is time consuming and slows troop buildup. Heavy loads and sling loads should not be programmed in initial serials.

At the LZ, leaders at each command level account for all personnel and equipment and render appropriate reports to higher headquarters. Key personnel killed, wounded, or missing are replaced according to unit SOP or as stated in the operation order. Key weapons missing or out of action may require reorganization of the force and/or redistribution of weapons. After the unit completes its consolidation of the LZ, it is reorganized as necessary. Ground combat operations are no different from those conducted by other infantry units (FM 7-20).

LIFT HELICOPTERS' RETURN TRIP

When the LZ operation is finished, aviation elements return by preselected routes to complete subsequent lifts or to conduct other operations or, if prescribed in the order, move to a laager.

If subsequent lifts are required in the same operation, the procedures described are repeated.

Section III. ATTACKS—HASTY AND DELIBERATE

The AMTF may conduct attacks in conjunction with other forces. The type action conducted by a larger ground mobile force usually dictates the type of attack the AMTF employs.

HASTY ATTACK

Situations in which an AMTF might be called on to execute a hasty attack in support of a larger ground force are:

During movement to contact by the larger force when unexpected contact is made. The AMTF is committed to exploit a tactical advantage or to further develop the tactical situation.

When part of the larger force's deliberate attack plan is modified while the operation is underway. The AMTF is committed to reinforce in a weakened area or to exploit a tactical advantage.

At the conclusion of an attack when further advance is ordered. The AMTF is committed to exploit the attack's success and to maintain momentum.

When a hasty attack is considered under any of these circumstances, tentative PZs, LZs, and flight routes throughout the higher unit's zone of action are identified. This permits rapid commitment of the AMTF anywhere in the sector.

The hasty attack is conducted on short notice. The AMTF commander has little time to plan. Orders are brief. AMTF personnel must be well-trained and SOPs must be designed to cover these situations.

SUPPRESSIVE FIRES

When the AMTF is committed, the commander initiates several actions simultaneously. He directs suppressive fires to neutralize the enemy's ability to counter the airmobile operation, and he concentrates sufficient combat power to overwhelm the enemy at selected points.

While the TF is en route, support fires suppress or destroy known or suspected enemy positions and weapons that can attack the helicopters.

As the attack starts, attack helicopter units continue to overwatch and react as necessary while the AMTF commander and FSO allocate field artillery (FA), mortar, CAS, and antitank guided missiles (ATGM) to targets. FA and mortars suppress enemy indirect fire weapons as soon as they are located.

SMOKE

Smoke may be used to screen aircraft movement from enemy observation. However, the AMTF must be careful that smoke does not obscure the LZ and hinder the landing operation.

DELIBERATE ATTACK

A larger force, of which the AMTF is a part, may encounter a well-prepared, strong enemy defense that a hasty attack cannot eliminate. When this happens, the larger force takes time to conduct a deliberate attack.

The AMTF, as part of the larger force operation, may also conduct a deliberate

attack. The AMTF commander is provided sufficient time to collect detailed information about the enemy.

SOURCES OF INTELLIGENCE

Intelligence is collected from the following sources:

Higher, lower, and adjacent units.

Ground and air reconnaissance.

Prisoners and local civilians.

All available surveillance resources.

Detailed information about the terrain is collected so the best PZs, LZs, and flight routes can be selected.

LEADERS' RECONNAISSANCE

When possible, leaders at all levels look at the terrain. If the attack is to be conducted at night, they observe the terrain at night. Airmobile objectives are normally in the enemy's rear area, or the attack is from the flank or rear. This will normally preclude or limit the opportunity for leaders to see the terrain. The commander may have to rely on maps and aerial photographs.

BYPASSING OF ENEMY MAIN DEFENSES

When the larger force concentrates its combat power on a narrow front to break through enemy defenses, the AMTF may move around the enemy flank(s) to get in the rear area. The AMTF attack bypasses main defenses to destroy artillery positions, command posts (CP), logistics and communication facilities, and/or to secure key terrain in the rear.

Section IV. SECURE AND DEFEND

This type airmobile operation is two-phased and requires detailed planning like a deliberate attack.

FIRST PHASE

The first phase is an attack to secure terrain to be controlled by the AMTF in the initial stages of the assault.

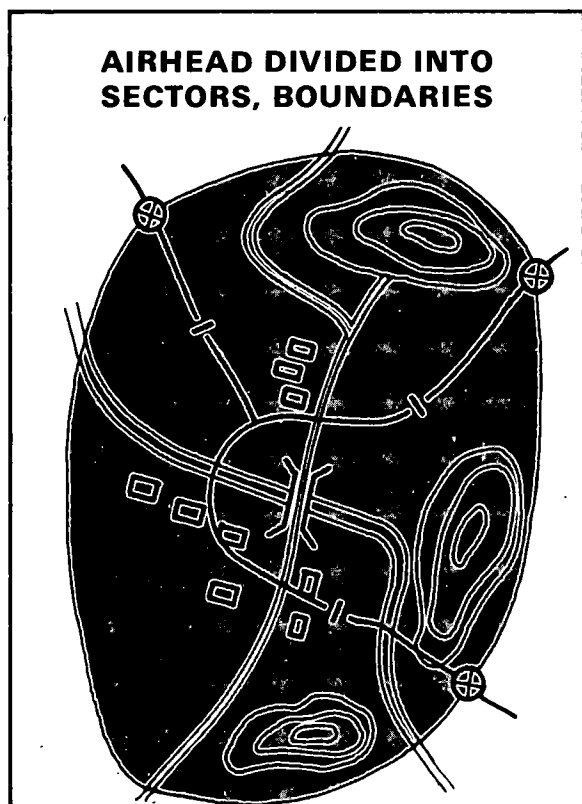
A typical secure-and-defend mission might have an AMTF given the mission to secure a bridge to be used by linkup forces. The bridge is to be taken before the enemy can destroy or damage it, or use it for withdrawal. The bridge is designated as the AMTF's primary objective.

SECOND PHASE

The second phase of the operation is the defense of the objective secured in phase one. The AMTF normally establishes an airhead. This is a perimeter defense which ties in with existing terrain features (FM 7-20).

The airhead is large enough to provide operating space for combat, combat support, and combat service support units. It should include adequate LZs for simultaneous combat assaults using all airlift assets and provide space for landing follow-on forces and supplies. The airhead is small enough for a battalion to defend yet large enough to permit defense in depth and maneuver of reserves to counter enemy attacks.

As a rule, the size area an infantry battalion can defend is 2 to 3 kilometers (km) in diameter. Size is dictated by mission, enemy strength and disposition, terrain, and AMTF combat power.



BOUNDARIES

Boundaries delineate responsibilities of AMTF subordinate elements. The airhead is often divided into company-size objectives for the airmobile assault. Each company clears, secures, and defends an assigned area of the airhead (which seldom has a rear area). The size sector assigned each company should be within its capability to seize and defend, based on an analysis of the enemy, terrain, and task organization.

A company facing a dangerous avenue of approach, for example, is assigned a smaller sector than a company facing a less dangerous avenue.

ASSAULT OBJECTIVES

A terrain feature to be secured in the assault, and vital to AMTF mission accomplishment, is designated an assault objective. The assault objective should include terrain which dominates all high-speed approaches into the airhead area.

Assault objectives are assigned priorities. Those specified by higher headquarters are given first priority. Others are ranked according to the threat they would pose if controlled by the enemy.

Defensive responsibility for an avenue of approach is not divided. The unit assigned the approach also covers any dominating terrain.

A company's sector should include at least one LZ for the assault and to aid in resupply and evacuation.

Boundaries minimize adjustments during the transition from assault to defense. They should also prevent one unit from defending in widely divergent directions.

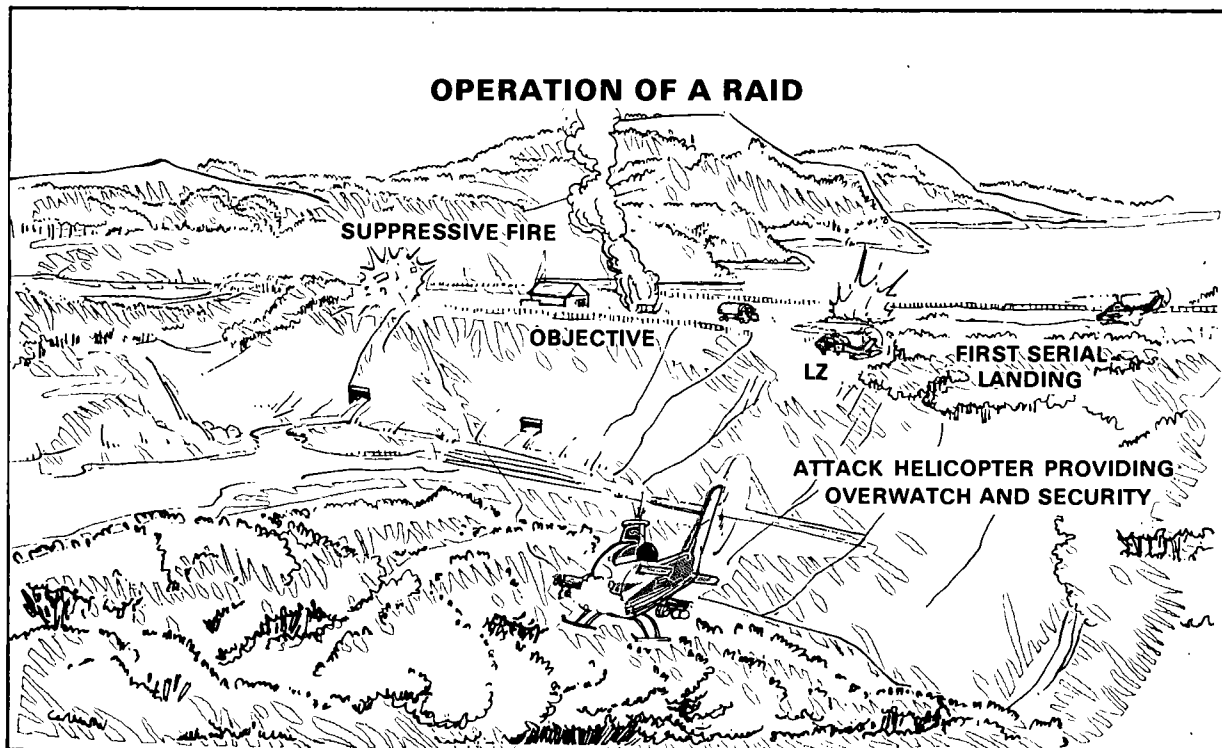
Section V. RAID

Because a raid is conducted behind enemy lines, it requires exact planning to insure a high probability of success.

An airmobile raid is a swift penetration of hostile territory which may be conducted to destroy installations, confuse the enemy, or gather information. It ends with a planned withdrawal. The selection of PZs, LZs, and flight routes (as in the deliberate attack) is based on the results of detailed planning. Since the raiding force attempts to achieve surprise, the decision to land on the objective takes on added significance.

The AMTF may land directly on the objective (or close to it) when the following apply:

- *There is a suitable LZ.*
- *The enemy does not have a highly mobile reaction force nearby to attack the AMTF immediately after it lands.*
- *The objective is not accessible overland.*
- *The TF commander determines that overland movement would expose his force and disrupt the mission.*
- *Surprise is important.*
- *Local air defenses are weak.*



The AMTF may land some distance from the objective when these considerations apply:

- *The TF commander decides to assemble and reorganize prior to conducting the assault.*
- *The only suitable LZs are away from the objective.*
- *There is a highly mobile enemy force on the objective that could disrupt the landing.*
- *Surprise is not imperative.*
- *Local air defense is too strong.*

ESSENTIAL TASKS

To conduct a raid, the AMTF commander task organizes his force to accomplish four essential tasks:

COMMAND AND CONTROL

During airmovement, the AMTF commander controls the operation from the command-and-control aircraft. After units are on the ground, he may join one of the ground units or he may continue to control operations from the command-and-control helicopter.

Engineers and combat support elements may be placed under operational control (OPCON) of one of the maneuver companies to facilitate control during the airmovement.

SECURITY

The element given the security mission blocks avenues of approach into the objective

and provides suppressive fires for the withdrawal after the mission is complete.

SUPPORT

The element providing assault support lays down heavy fire to neutralize the objective and overcome the enemy occupying it.

ASSAULT

The element conducting the assault secures the objective and provides security for specialty teams (e.g., demolition).

REHEARSAL

Rehearsals are critical to success. The operation should be rehearsed several times by all the elements participating in the raid. If it is a night raid, rehearsals are conducted during daylight and darkness.

WITHDRAWAL

A raid differs from other attacks *because it includes a withdrawal plan*. The plan contains provisions for withdrawal by air as well as on foot (in case aircraft cannot extract the force).

Withdrawal by air is discussed in section VII.

Withdrawal on foot may require the entire force to move as a unit or the force may have to break down into small elements to evade enemy contact and infiltrate to friendly territory.

Section VI. RECONNAISSANCE IN FORCE

PURPOSE

An AMTF reconnaissance in force finds enemy positions and tests their strength to obtain information *required* for future operations.

This type operation is conducted by forces strong enough to accept engagements with the enemy in order to accomplish their mission. The information obtained (e.g., major weaknesses in enemy positions), if promptly exploited, may provide a significant tactical advantage. The reconnaissance in force is planned and conducted with elements specifically prepared to find the enemy and develop the situation. Once the units are committed, they are on a "be prepared to fight" status.

CONSIDERATIONS

The reconnaissance in force accepts risks to gain intelligence information rapidly and in more detail than other reconnaissance methods. The commander assigning an AMTF this mission must determine the following:

Is the desired information important enough to justify the risks to personnel and equipment?

Can other intelligence methods obtain the same information in sufficient time with less risk?

Will the reconnaissance in force compromise future plans?

Can the operation succeed?

PLANNING AND EXECUTION

When the commander wants information about a particular area, the reconnaissance in force is planned and executed as a series of limited-objective attacks with objectives assigned to subordinate units.

The operation begins in much the same manner as a deliberate attack to seize selected terrain followed by a series of hasty attacks.

PRESS ENEMY REACTION

The reconnaissance in force, however, differs from the normal attack which is conducted to destroy enemy forces or secure terrain. *The reconnaissance in force locates the enemy and presses him into reacting.*

When the force discovers a weak point, the AMTF exploits it quickly. The TF commander exercises caution, however, since the enemy response may be too strong for the TF. Thus, the commander also plans withdrawal to avoid destruction of the AMTF.

When the commander wants information about a particular area, the reconnaissance in force is planned and executed as an attack against a specific objective.

The objective is of such importance that when threatened the enemy will react.

For example, a successful reconnaissance in force may cause commitment of enemy reserves, redeployment of enemy fire support means, or adjustment of enemy second-echelon forces.

Taking a terrain objective is *not in itself* the purpose of the operation. Rather, the operation seeks to obtain specific information about the enemy by seizing a terrain objective. The objective location depends on the information desired.

The AMTF's combat power must be sufficient to force enemy reaction. This should disclose positions, strength, planned fires, and planned use of reserves. It may also disrupt the enemy's planned operations and take the initiative from him.

An AMTF infantry battalion commander can deploy its three companies against specific objectives; or, the commander may commit one or two companies and retain the third to respond to tactical situations as they develop.

When the enemy reacts to one unit, the unengaged units are shifted to exploit revealed enemy weaknesses or help extract the endangered unit.

Section VII. WITHDRAWAL BY AIR

PLANNING

An AMTF's withdrawal by air may be the planned, final phase of an operation, as in a raid, or it may be an unplanned redeployment of the AMTF for action elsewhere. In either case, the ground tactical plan is expanded to involve movement into and defense of the PZ.

If the withdrawal is for the purpose of committing the force to another combat mission, then an additional ground tactical plan is prepared for that phase of operation.

Either plan is as detailed as time permits and includes:

PZ designation.

Fire support plan for movement to secure the PZ and to cover the withdrawal.

Schedule of unit movement to PZ.

Loading priorities.

Designation of, and instructions for, the PZ control group.

LZ designation following withdrawal.

UNIT SEQUENCE

The sequence of unit withdrawal varies according to the tactical situation and the subsequent mission of the AMTF. Administrative and combat service support personnel and heavy equipment are withdrawn first (before tactical units). The commander may withdraw them to a secured (intermediate) area and then move them to another (combat) area after it is secured.

Unit redeployment is determined by combat and security requirements in the new area.

PZ DESIGNATION

PZs are designated by the headquarters controlling the withdrawal. PZs are as close to unit positions as the terrain and enemy situation permit. To achieve speed in landing, loading, and lift-off, multiple PZs are used (consistent with available security forces).

SENIOR PZCO

A PZCO is designated for each unit's PZ as well as a senior PZCO who calls for and guides units from their assembly areas to the PZs to expedite loading. All PZ operations are coordinated by this officer. He maintains contact with the AMC, or his representative, to insure coordinated arrival of troops and aircraft.

PATHFINDERS

Airmovement control by pathfinders facilitates precise timing and minimum

delay during withdrawal. Pathfinder team size depends upon the size force moved, number of aircraft, pickup zone, and visibility.

SECURITY

Security elements are positioned to cover the main body as it assembles, moves to the PZ, and withdraws. Security may be composed of small detachments from each subordinate unit or it may be one of the subordinate units. The latter is usually best. Unit integrity aids control and gives more effective reaction in case of attack. Security elements protect the PZ at a time ordered by the unit commander conducting the withdrawal.

Each aircraft withdrawing the security force lands as close as possible to its individual load. During this short interval, attack helicopter teams overwatching the withdrawal provide security. Panels or smoke grenades identify each loading site.

The last security element to withdraw achieves some protection by firing Claymore mines and automatic weapons just before loading. The loading and lift-off are executed quickly. Attack helicopter teams overwatch the lift-off.

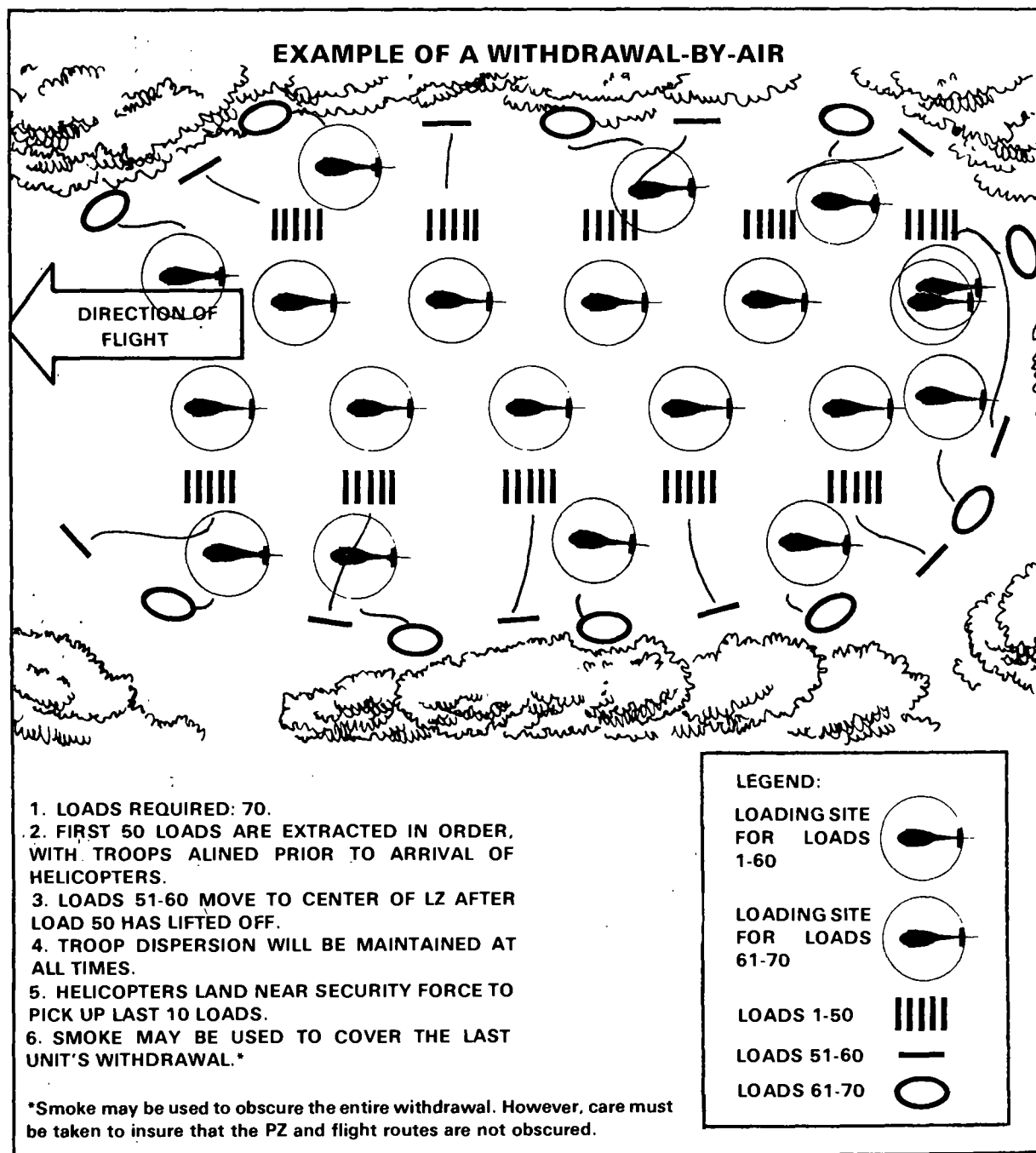
RESERVE

A reserve, when designated, may remain airborne near the PZ or on standby in another area. This gives the commander a reaction force which can be employed as required to support withdrawal of the security force.

FIRE SUPPORT

During withdrawal, fire support is

planned and executed to protect security elements as combat power on the PZ diminishes.





APPENDIX A REFERENCES

Army Regulation (AR) _____

AR 310-25 Dictionary of United States Army Terms

AR 310-50 Authorized Abbreviations and Brevity Codes _____

AR 350-1 Army Training

Field Manuals (FM) _____

FM 1-2 Aircraft Battlefield Countermeasures and Survivability

FM 1-51 Rotary Wing Flight

FM 1-60 Airspace Management and Army Air Traffic in a Combat Zone

FM 5-100 Engineer Combat Operations

FM 6-20 Fire Support in Combined Arms Operations

FM 7-20 The Infantry Battalion (Infantry, Airborne, Air Assault, Ranger)

FM 8-35 Evacuation of the Sick and Wounded

FM 17-47 Air Cavalry Combat Brigade

FM 17-50 Attack Helicopter Operations

FM 17-95 Cavalry

FM 19-4 Military Police Combat Support, Theater of Operations

FM 21-6 How to Prepare and Conduct Military Training

FM 21-40 NBC (Nuclear, Biological, and Chemical) Defense

FM 21-60 Visual Signals

FM 21-76 Survival, Evasion, and Escape

FM 30-5 Combat Intelligence

FM 31-85 Rear Area Protection (RAP) Operations

FM 55-12 Movement of Army Units in Air Force Aircraft (AFM 76-6)

FM 57-38 Pathfinder Operations

FM 90-1 Employment of Army Aviation Units in a High Threat Environment

FM 90-13 River-Crossing Operations

FM 100-5 Operations

- FM 101-5 Staff Officers' Field Manual: Staff Organization and Procedure*
- FM 101-10-1 Staff Officers' Field Manual: Organizational, Technical, and
Logistical Data, Unclassified Data

Training Circulars (TC) _____

- TC 1-65 Helicopter Operations from Amphibious Assault Ships
- TC 1-88 Aviator's Recognition Manual
- TC 23-44 Small Arms Defense Against Air Attack

Technical Manuals (TM) _____

- TM 55-450-11 Air Transport of Supplies and Equipment: Helicopter External
Loads Rigged with Air Delivery Equipment
- TM 55-450-15 Air Movement of Troops and Equipment (Nontactical)

**Army Training and
Evaluation Programs (ARTEP)** _____

- ARTEP 7-15 Infantry Battalions (Infantry, Airborne, Air Assault, Ranger)

*To be revised as:

FM 101-5, Staff Organization and Operation (How to Fight)

COLUMN 5

This information will be taken from the battalion airmovement table. It will provide the sequence of movement within the battalion and company.

COLUMN 6 AND 7

This information will be taken from the battalion airmovement table. It will indicate which aviation unit will be lifting a particular load.

COLUMN 8

Each aircraft within the lift is assigned a load number. The numbers will correspond to a specific lift and serial; e.g., lift No. 1, serial 2, load 7. The platoon will be given specific load numbers by the company commander, and the

platoon leader will in turn assign a load number to each of his aircraft loads. This information will normally not be available at the time the squad leader prepares his manifest, but should be provided to him as soon as possible.

COLUMN 9

The remarks column can be used by the commander to place specific information not provided in the preceding columns. One pertinent bit of information that is essential in this column is the sequence of bump for aircraft loads; e.g., serial 1, loads 4-5; serial 2, loads 9-10. This means that if two loads cannot be lifted, loads 4 and 5 will be the ones that remain in the PZ. If only one load cannot be lifted, load 4 will remain in the PZ.

Section III. SEQUENCE OF ACTIONS FOR AIRMOBILE OPERATIONS

The following lists provide a sequence of actions taken by the airmobile task force (AMTF) commander, his staff, and subordinate unit commanders in planning an airmobile operation. The list is not all inclusive. Certain actions may be omitted for some operations.

AIRMOBILE TASK FORCE COMMANDER ACTIONS:

Receive brigade warning order.	Begin development of commander's estimate.
Conduct mission analysis.	
Receive air mission commander's initial information.	Provide guidance to staff as needed.
Give warning order to task force.	Obtain data from staff as needed.
Receive personnel status report from S1.	Announce concept.
Receive equipment status report from S4.	Supervise development of OPORD.
Receive enemy situation briefing from S2.	Receive airmovement table. Approve, or modify and approve.
Receive friendly forces information briefing from S3.	Receive airloading tables from S3.
Continue analysis of mission, enemy, terrain and weather, and troops and equipment.	Receive copy of OPORD from S3.
Receive brigade operations order (OPORD).	Approve, or modify and approve, OPORD. Return OPORD to S3.
	Issue, or oversee issuance of, OPORD.

AIR MISSION COMMANDER ACTIONS:

Receive brigade warning order.	Provide technical advice to AMTF executive officer (XO) and S2 for PZ and LZ identification.
Conduct mission analysis.	
Give AMC initial information to AMTF commander and staff.	Coordinate with supported unit staff.
Receive task force warning order.	Provide information to aviation unit on ground unit operation.
Receive friendly forces information briefing from AMTF S3.	Provide advice to AMTF S3 on PZ selection.

Provide flight route information to AMTF S2.

Assist AMTF XO in PZ control plan.

Assist AMTF S3 Air in flight route computations.

Coordinate PZ operations with AMTF XO.

Provide advice to AMTF S3 on LZ and flight route selection.

Obtain PZ/LZ, flight routes, and aircraft allocation from AMTF S3 Air.

Obtain PZ control plan from AMTF XO.

Aid AMTF S4 in selecting logistic PZ(s).

Coordinate aircraft internal and sling equipment loads with AMTF S4.

Obtain airmovement table for AMTF S3 Air.

Brief aviation unit on operation.

Inspect PZ (s) with AMTF XO.

Receive AMTF OPORD.

EXECUTIVE OFFICER ACTIONS:

Receive TF warning order.

Receive personnel status report from S1.

Receive equipment status report from S4.

Receive enemy situation briefing from S2.

Receive AMC initial information.

Receive friendly forces information briefing from S3.

Determine available PZs. Obtain advice from AMC.

Submit PZs to S3.

Coordinate staff planning.

Obtain PZs from S3.

Develop PZ control plan.

Coordinate PZ operations with AMC/pathfinders.

Receive AMTF commander's concept.

Obtain PZs/LZs, flight routes, and aircraft allocation from S3 Air.

Coordinate PZ operation with S1. Complete bump and straggler control plan.

Inspect PZs with pathfinders.

Brief PZ control plan to subordinate PZCOs. Provide pathfinder to each PZCO.

Obtain airmovement table from S3 Air.

Obtain airloading tables from S3 Air.

Obtain sequence of bump from subordinate units. Annotate airmovement table with sequence of bump.

Complete PZ control plan. Submit to S3.

Inspect PZs with pathfinder/AMC.

Receive OPORD.

S1 ACTIONS:

Receive operation notification.	Coordinate PZ operations with battalion XO. Develop straggler control plan.
Assemble personnel data.	Brief subordinate unit personnel on straggler control plan.
Receive task force (TF) warning order.	Receive command post general location from S3.
Report personnel status to commander and staff.	Coordinate PW, civilian control plan with S2.
Receive AMC initial information.	Complete PW, civilian control plan. Coordinate with S4.
Receive friendly forces information briefing from S3.	Complete S1 portion of para 4, OPOD. Give to S4.
Begin mission analysis from personnel standpoint.	Receive airloading tables from S3 Air.
Begin preparation of staff appraisal (personnel).	Coordinate with HQ commandant. Develop plan for command post displacement and security.
Complete medical support evacuation plans.	Coordinate command post displacement plan with S3.
Provide S3 with staff appraisal (personnel).	Receive OPOD.
Receive AMTF commander's concept.	

S2 ACTIONS:

Receive operation notification.	Analyze weather forecast.
Request any needed maps through S4.	Obtain advice concerning flight routes from AMC.
Assemble intelligence data.	Determine available flight routes.
Request weather forecast.	Provide available flight routes to S3 Air.
Distribute maps.	Recommend essential elements of information and other intelligence requirements.
Brief commander, staff, and subordinate unit commanders on enemy situation.	Develop intelligence collection plan.
Obtain advice concerning LZs from AMC and pathfinders.	Request aviation reconnaissance/aerial photos.
Determine available LZs.	
Submit LZ list to S3.	

Begin preparation of staff appraisal (intelligence).

Provide intelligence data to commanders and staffs.

Process intelligence data gathered.

Complete staff appraisal (intelligence).

Provide S3 with staff appraisal (intelligence).

Continue processing intelligence data. Provide to commanders and staffs.

Recommend employment of GSR/scout platoon to S3.

Recommend targets to FSCoord.

Complete para 1 (enemy forces) of OPORD and submit to S3.

Continue processing intelligence data. Provide to commanders and staffs.

Coordinate development of PW and civilian control plan with S1.

Provide all intelligence data to commanders and staffs as it becomes available (aerial photos, recon mission results).

Update intelligence map as needed.

Continue processing intelligence data. Provide to commanders and staffs.

Receive OPORD.

S3 ACTIONS:

Receive brigade warning order.

Assemble data on friendly elements.

Receive AMC initial information.

Receive TF warning order.

Receive personnel status from S1.

Receive equipment status from S4.

Receive enemy situation briefing from S2.

Brief AMC initial information.

Brief friendly forces disposition and location.

Begin development of courses of action.

Obtain input on pathfinder employment.

Receive list of available LZs from S2; available PZs from XO.

Receive brigade OPORD.

Begin preparation of staff appraisal (operations).

Select PZs. Brief XO and S3 Air on PZs selected.

Obtain available flight routes from S3 Air.

Consolidate staff information.

Provide staff appraisal to commander.

Select LZs and flight routes.

Determine need for indirect fire preparations.

Begin preparation of OPORD.

Receive employment recommendations for GSR and scout platoon from S2.

Provide XO and S3 Air with PZs and aircraft allocation.

Select general location for command post. Provide information to S1.

Receive S2 input to OPORD. Receive admin/log portion of order from S4.

S3 ACTIONS CONTINUED:

Complete OPORD para 1, 2, and 3 (to include concept and subunit para).

Receive airmovement table from S3 Air. Obtain approval from AMTF.

Receive fire plan from FSCoord.

Obtain airloading tables from S3 Air.

Receive OPORD para 4 information from S4.

Complete para 5, OPORD.

Complete operation overlay.

Coordinate command post displacement with S1.

Obtain PZ control plan from XO.

Complete OPORD with annexes. Submit to AMTF commander for approval.

Receive OPORD from AMTF commander.

Issue OPORD, when directed by commander.

S3 AIR ACTIONS:

Receive operation notification.

Receive TF warning order.

Receive personnel status from S1.

Receive equipment status from S4.

Receive enemy situation briefing from S2.

Receive AMC initial information.

Analyze AMC's initial information for available assets.

Begin preparation of airmovement table.

Process air requests from S3.

Obtain PZs from S3. Provide PZs to fire support coordinator (FSCoord) and staff as needed.

Establish liaison with TACAIR control party. Coordinate preplanned TACAIR.

Receive available flight routes from S2.

Compute flight route time and distance.

Provide available flight route information to S3.

Receive AMTF commander's concept.

Obtain LZs, flight routes, and aircraft allocation from S3. Provide data to AMC, FSCoord, subordinate unit commanders, and staff, as needed.

Obtain any additional tactical air (TACAIR) requirements from FSCoord.

Initiate request for TACAIR cap (cover) and offensive air support.

Obtain logistic PZs from S4.

Complete airmovement table. Submit to S3 for approval.

Distribute airmovement table.

Obtain subunit airloading tables.

Consolidate airloading tables. Provide to AMTF commander, S3, XO, and S1.

Receive OPORD.

S4 ACTIONS:

Receive operation notification.	Compare usage data to materiel available.
Obtain maps requested by S2.	Request materiel as needed.
Assemble equipment data.	Coordinate with AMC on establishing FARP.
Receive TF warning order.	Provide S3 with staff appraisal (logistics).
Receive personnel status from S1.	Receive AMTF commander's concept.
Report equipment status to commander and staff.	Begin development of support plan for operation. Obtain LZs and flight routes from S3 Air.
Receive enemy situation briefing from S2.	Coordinate trains operation and control with supply platoon leader. Obtain S1 input to para 4, OPORD.
Receive AMC initial information.	Complete S4 portion of para 4, OPORD. Provide para 4, OPORD, information to S3.
Receive friendly forces information from S3.	Select logistic PZs. Provide to S3 Air.
Begin mission analysis to determine requirements.	Plan aircraft loads (internal and sling) for mission support. Coordinate pickup points with AMC/pathfinder.
Receive initial supply requirements from subordinate units.	Coordinate plans for evacuation of enemy materiel with S2.
Begin preparation of staff appraisal (logistics).	Receive OPORD.
Determine effects of ammunition supply rate on operation. Submit ammunition supply rate to FSCoord.	
Compile materiel usage data for operation. Obtain PZs from S3 Air.	

FSCoord ACTIONS:

Receive operation notification.

Begin mission analysis to determine available and needed means of fire support.

Plot locations/capabilities (range fans) for all indirect fire support systems supporting the TF.

Estimate fire support needed.

Obtain ammunition supply rate from TF S4 and S3 of DS FA battalion. Determine effects of ammunition supply rate on operation. Gather information for development of fire support plan.

Obtain PZs from S3 Air.

Continue to gather information for development of fire support plan.

Coordinate fire support requirements with S3.

Provide S3 with available fire support recommendation for indirect fire preparations.

Obtain LZs and flight routes from S3 Air.

Obtain recommended targets from S2. Develop TACAIR requests to support ground tactical plan.

Complete fire support plan.

Submit fire support plan to S3 for commander's approval. On approval, distribute.

NOTE: Subunits will develop their fire plans. FSCoord will coordinate and consolidate them into the AMTF plan.

Receive OPORD.

SUBORDINATE UNIT COMMANDERS' ACTIONS:

Receive operation notification.

Gather personnel and equipment data.

Report personnel and equipment to battalion staff. Receive maps.

Receive battalion warning order.

Issue company warning order.

Determine initial supply requirements.

Submit initial supply requirements to S4.

Begin preparation of airloading tables.

Continue mission preparation.

Obtain appropriate PZs, LZs, flight routes, and aircraft allocation from S3 Air.

Continue mission planning.

Obtain airmovement table from S3 Air.

Complete airloading tables.

Submit airloading tables to S3 Air.

Receive OPORD.

APPENDIX C

SAMPLE ANNEX

TO INFANTRY BATTALION SOP

FOR AIRMOBILE TASK FORCE

OPERATIONS

with

- Inclosures:
1. Airmobile Formations and Battle Drill.
 2. Airmobile Task Force Commander's Checklist.
 3. Aviation Mission Commander's, or Aviation Liaison Officer's, Checklist.

(This is an annex to a Standing Operating Procedure (SOP) for combat operations; it is not a complete SOP.)

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Copy of Copies
1st Battalion, 66th Infantry
Fort Benning, Georgia
25 December 19

Annex E (Airmobile Operations) to Infantry
Battalion, Infantry Division Field Standing
Operating Procedures

1. GENERAL.

a. Purpose. This annex prescribes the organization and procedures to be followed in preparing for and executing airmobile task force (AMTF) operations. Only procedures peculiar to airmobile operations are included; otherwise, basic Standing Operating Procedures (SOP) apply.

b. Application. Applies to all organic and supporting units under control of 1st Battalion, 66th Infantry. Company SOPs will conform.

2. PERSONNEL.

a. Strength, Records, and Reports.

(1) Companies will be organized into assault and rear echelons. Upon receipt of warning order, submit unit strength to S1 and equipment availability status to S4. S1 and S4 will forward to S3 who will determine sortie requirements.

(2) Upon closing into landing zone (LZ), companies will report personnel and equipment status to AMTF forward command post (CP) on AMTF command net using report format in CEOI.

b. Discipline, Law, and Order.

(1) S1 will establish a straggler control point on each pickup zone (PZ) in vicinity of pickup zone control officer (PZCO) in coordination with S3 and the PZCO. All units will have a representative (from rear echelon) located at the straggler control point on their PZ(s). "Bumped" personnel will be reported to S1/PZCO by company straggler control personnel for consolidation and rescheduling into appropriate LZ(s).

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(2) Straggler control is company responsibility upon landing.

(3) Personnel landed in other than an assigned LZ are to report to the on-site unit commander (representative) immediately. Personnel are attached to that unit until ordered to return to parent unit by this headquarters. Gaining unit will report personnel so attached to S1 by number and parent unit. (Do not include these personnel in unit strength reports.)

c. Prisoners of War (PW). PWs are to be reported immediately to the S3, who will issue evacuation instructions. Indicate available PZ location for pickup by air in initial report. S2 will determine whether to evacuate through battalion or direct to brigade PW collection point.

d. Medical Evacuation (medevac). Report all casualties for evacuation by priority code.

(1) Medevac requests follow standard format for casualties and are classified as routine, priority, or urgent. Radio frequency of supporting medevac unit will be included in each operation order. Make maximum use of empty lift helicopters departing LZ. Do not interrupt airlanding operations--use last helicopters in the flight.

(2) S1 is responsible for providing CEOI, LZs, and flight route overlay to supporting medevac unit.

3. INTELLIGENCE.

a. Weather.

(1) Battalion S2 will obtain and disseminate the following:

(a) Long-range forecast immediately after receipt of mission.

(b) Short-range forecasts up to H-2 hours.

(2) Command weather reconnaissance 1 hour prior to lift-off will be coordinated among task force (TF) commander, S2, and air mission commander (AMC).

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(3) Operations are executed only on order of this headquarters when weather is below 1/2-mile visibility and 100-foot ceiling.

b. Terrain.

(1) Maximum utilization will be made of command aerial reconnaissance down to platoon leaders, consistent with aviation resources, available time, and tactical situation.

(2) Use sandtable briefing techniques when possible in conjunction with maps and aerial photographs.

(3) Maps will be issued immediately after receipt of warning order, if available. If not available, they will be issued on receipt from higher headquarters.

(4) Aerial photographs will be made available upon receipt. S2 will automatically process all requests (conserving assets, as appropriate). Priority to answering essential elements of information (EEI). Priority of issue to assault echelon.

c. Evasion and Escape.

(1) Personnel in aircraft forced to land behind enemy lines en route to the objective will--

(a) Establish immediate security in vicinity of downed aircraft.

(b) Remain in that location utilizing aircraft radios to contact recovery aircraft.

(c) Mark and clear suitable landing points for recovery and withdrawal helicopters.

(2) The senior ground force individual assumes responsibility for organization and conduct of security until recovery is executed.

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(3) If the above is not possible due to enemy pressure, evade capture and attempt to join friendly units by infiltration. Personnel will attempt to evade and escape back along flight route. Maximum rescue effort will be directed along flight routes, with particular emphasis at checkpoints. Continuous attempts will be made to locate suitable landing points for withdrawal by helicopter(s). The wounded will be evacuated with infiltrating personnel. The dead will be concealed and stripped of weapons, ammunition, and items of intelligence value. Locations of dead left behind will be recorded.

(4) If enemy pressure becomes a threat to downed aircraft, senior ground force individual will take steps to secure or destroy classified or sensitive items. Aircraft destruction will be on order of this headquarters if capture is not imminent. If contact with this headquarters cannot be made, the senior individual on the ground will make decision on aircraft destruction in order to prevent capture by enemy.

4. OPERATIONS.

a. Planning Phase.

(1) Except when accomplished by higher headquarters, this headquarters will prepare plans in coordination with the supporting AMC.

(2) Plans will continue to be refined until executed. All operational information will be given to subordinate commanders as soon as determined, particularly as follows:

(a) The size and composition of the force required to execute the mission.

(b) Allocation of assault and logistical aircraft, based on allowable cargo load (ACL) provided by the AMC.

(c) Designated PZs and helicopter PZ formation. Designated flight routes, LZs, and LZ helicopter formation.

(d) Current Communications-Electronic Operation Instructions (CEOI) in effect to include frequencies and call signs of all participating units.

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(3) Coordination between the supported and supporting commanders must include, as a minimum:

- (a) Enemy and friendly situation.
- (b) Mission.
- (c) Fire support plan.
- (d) Abort and alternate plans.
- (e) Weather to include minimums and delays.
- (f) Type, number, and ACL of helicopters.
- (g) Helicopter formations in PZ and LZ.
- (h) Airmovement data and timing for the operations.
- (i) Communication (primary and alternate frequencies and plans).
- (j) Location and call sign of second in command.
- (k) Required command reconnaissance (recon) by the airmobile TF and supporting aviation commanders.
- (l) Time synchronization.
- (m) Downed aircraft procedures.

(4) Operations security (OPSEC). This will be emphasized in each phase of an airmobile operation. The object will be to conceal the capabilities and intentions of the AMTF. The four general OPSEC measures will be considered for every operation: deception, signal security, physical security, information security. The S2 will provide intelligence collection of Threat data. The S3 will insure that the staff and subordinate commanders are aware of OPSEC measures to be employed to counter the Threat. Emphasis must be placed on maintaining the elements of surprise and security. Additionally, all supporting elements must be aware of the necessity of maintaining a high degree of operational security. As a minimum, the AMTF commander, supporting commanders, and subordinate commanders should employ the following techniques:

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(a) Deception.

- personnel.
1. Camouflage vehicles, equipment, and
 2. Overflights of other LZs (if aircraft are available and enemy situation does not preclude).
 3. Insertion at night or during other periods of reduced visibility.
 4. Noise and light discipline.
 5. Dummy laager sites for aircraft.
 6. Recon overflights of several objectives.

(b) Signal security (SIGSEC).

- techniques.
1. Communications security (COMSEC)
 2. Radio listening silence.
 3. Use of arm-and-hand signals (on the ground).
 4. Use of low power and secure mode on radios.

(c) Physical security.

1. Use of security forces at LZ and PZ.
2. Use of wire, mines, barriers, and security troops at aircraft laager sites and troop assembly areas.
3. Use of pathfinder to secure LZ, if possible.

(d) Information security.

1. Counterintelligence.

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- information.
2. Strict control of all operational
- need to know.
3. Release information only to those with a
4. Last-minute release of attack time
(objective) and force composition.

b. Landing Phase.

(1) The aircraft commander will notify each aircraft troop commander of any changes to the order, any change in LZ(s) and/or direction of landing, and when the helicopter is over the release point (RP). The troop commander then informs his personnel of any changes and alerts them to prepare to unload.

(2) Passengers may not move in the aircraft until clearance has been obtained from the aircraft commander. After the aircraft commander gives the clearance signal, troops and equipment are unloaded as rapidly as possible.

(3) After all troops and cargo have been unloaded from the aircraft, the crew chief will check the helicopter and signal the aircraft commander that the cabin is empty. Personnel will not depart helicopters to the rear. Departure from aircraft will be executed rapidly in the direction prescribed by battle drill (see battle drill, incl 1).

(4) The troop commander insures that members of his aircraft clear the LZ in a safe, expeditious manner. This prevents exposing personnel to unnecessary danger and prevents any delay in lift-off and landing of subsequent helicopters.

(5) Individual weapons will be fired only on order upon offloading unless enemy contact is made or if planned as part of the overall fire plan.

(6) Actions when there is no enemy contact on the LZ include:

(a) Move each helicopter load to the nearest covered and concealed position in direction of assembly area.

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(b) Establish LZ security for succeeding lifts (if applicable).

(c) Assemble, organize, and account for all personnel.

(d) Report.

(7) Actions when enemy contact is made on the LZ include:

(a) Return fire immediately, upon offloading, with all available firepower to gain fire superiority.

(b) Fight by helicopter loads, using fire and maneuver, until platoon/company can be formed (see battle drill, incl 1).

(c) Request and coordinate fire support.

(d) Secure the LZ for succeeding lifts.

(e) Report.

(8) Keep the AMTF commander informed during all actions.

c. Airmovement Phase.

(1) Lift-off time; passing start points (SP), RP(s), communication checkpoints (CCP), and LZ clearance time; and situation on LZ are reported to command and control helicopter by each aviation serial commander. (This may be omitted if operations order (OPORD) specifies radio silence.) Inability to comply with specific control times will also be reported as prescribed in OPORD.

(2) Troop leader remains oriented by continuous map-terrain comparisons.

d. Loading Plan.

(1) PZ is designated by this headquarters.

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(2) Aviation serial commander or aviation liaison officer will arrive prior to the helicopter flight and report to PZCO for last-minute briefing and coordination. He will notify the aviation commander of any changes and (along with pathfinders) will control aircraft operations.

(3) Serials organized to support the ground tactical plan.

(4) Helicopters will land in the PZ(s) in the specified formation (see incl 1). Unit leaders will brief troops on the helicopter formation prior to arrival of helicopters at PZ. PZs will be designated and marked using standard NATO colors (e.g., PZ Green marked with green smoke/helmet liner during the day, and green lights at night unless this will compromise security).

(5) Helicopters should arrive at the latest possible time to reduce time-on-ground before loading.

(6) During a battalion move, the battalion executive officer (XO), or designated representative, will act as PZCO. Company XO will act as PZCO during company-size operations and as unit PZCO during battalion-size operations with separate company PZ. Platoon sergeants will act as PZCO during platoon-size operations. PZCOs are responsible for developing and disseminating the PZ control plan. The PZCO will maintain contact with the AMC on a designated radio frequency personally or through assigned pathfinders. Each unit to be moved will have radio contact with the PZCO on a designated frequency. These personnel will establish radio contact with the PZCO 15 minutes prior to aircraft arrival. Units must be prepared to alter loads based on change of helicopter availability or change in allowable cargo load (ACL). Within each company, platoon, and squad, a priority of loading must be established. Priority of aircraft loads and personnel on each aircraft to be bumped will be designated. Personnel bumped report to the straggler control point.

(7) Supporting aviation unit assists in planning for the execution of loading by providing technical advice, supervision, and pathfinder support.

(8) Aircraft commander supervises aircraft loading.

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(9) Cargo or equipment to be transported externally is secured in cargo nets or on pallets for sling loading on helicopters. Hookup of these loads will be accomplished by the PZ control group. Unit code panels will be placed on each load.

(10) Preparation of individuals. Prior to any airmobile operation, the following individual preparation will be accomplished:

- (a) Fasten helmet chinstraps.
- (b) Collapse bipods on M60's and M16's.
- (c) Tie down loose equipment.
- (d) All weapons will be unloaded and on SAFE.
- (e) Unfix bayonets (if fixed).
- (f) Wear identification tags.

(g) Radiotelephone operators (RATELO) will use short whip antennas only. They will depress antennas to avoid breakage and to reduce the safety hazard. When directed, they will check communications with the tactical operations center (TOC), insuring that the radio remains "on" during flight. They will have a minimum of two extra batteries for each radio.

(h) An accurate list for each aircraft load by name, grade, and unit will be furnished to the battalion S1, through the unit officer in charge of loading, for airloading table data.

(11) Execution. The following sequence should be followed during the loading phase:

- (a) Secure PZ.
- (b) Approach aircraft only after it has landed.
- (c) Do not load until station time.
- (d) Load at double time.

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(e) The aircraft troop commander establishes and maintains communication with parent headquarters, using his radio and unit net, upon landing and while in flight for changes in mission, LZs, or last-minute intelligence dissemination. If a unit radio is not available, he should receive this information from the crew through the helicopter radio.

(12) When loading personnel or cargo into a helicopter, the aircraft troop commander insures that the following is accomplished:

(a) All safety measures prescribed for movement in and about the helicopter are observed.

(b) All personnel approach the helicopter in the prescribed manner.

(c) Personnel will not go near the tail rotor.

(d) All personnel and equipment will stay below the arc of the main rotor. Personnel should be especially watchful when loading on the slope of a hill; approach and depart helicopter on downslope side. However, entering and exiting the helicopter should be made on the uphill side so the pilot can better control the helicopter. Personnel with backpacked radios will hold antennas down during any movement around aircraft.

(13) Briefing on emergencies will be conducted by an aviation representative prior to loading, as appropriate.

(14) After all equipment and personnel have been loaded, the aircraft troop commander determines the following:

(a) Equipment and cargo are in the proper places.

(b) Cargo or equipment is properly secured.

(c) Each soldier is seated and his safety belt fastened.

(d) Weapons are placed between legs; muzzle up in utility aircraft (UH), muzzle down in cargo helicopters (CH).

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(15) When the aircraft troop commander has checked to insure that all cargo and personnel are secured, he will notify the aircraft commander.

(16) During flight, the pilot commands the aircraft. The aircraft troop commander insures that the following is accomplished.

(a) Cargo lashings (if applicable) are checked frequently to determine that cargo is properly secured.

(b) Troops keep safety belts secured and do not smoke unless authorized.

(c) Troops stay seated and do not move around in the cabin without authorization.

(17) In the event more than one lift is required, the PZCO will remain until the last lift to insure control and continuous communications.

(18) General aircraft load planning.

(a) All units will develop general load plans to facilitate movement on short notice.

(b) Necessary equipment, for aircraft loading and movement (nets, slings, and clevises), will be kept on hand.

(c) Personnel will be organized and trained in loading equipment to include sling loads.

(d) Battalion S3 Air will prepare airloading tables for movement by US Air Force aircraft. Companies will maintain airloading tables for airmobile operations (app B).

(e) Vehicles and major equipment will be prepared at all times to facilitate airlift operations. Chalk numbers will be predetermined for vehicles and trailers. Vehicles and major equipment to be transported into objective area will be reported with strength figures.

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(f) A-22 containers: maximum height (max ht) 40 meters; max weight (wt) 1,200 pounds (lb) (for all helicopter operations). This will allow one container lift by UHs (Blackhawk). If CHs (Chinooks) are available, two or more A-22's may be rigged together.

e. Subsequent Operations.

(1) Withdrawal by air. Withdrawal from an area of operation (AO) requires thorough planning, close coordination, and controlled execution. The following are considered important for any withdrawal by air:

(a) Primary and alternate PZs and flight routes must be planned.

(b) Defensive concentrations must be planned around the PZ. The security force will protect the loading force and return fire if engaged. When the last elements are ready to load, the security force will call in required fires to cover withdrawal and use their own fire to cover their loading.

(c) Maintain all-round security until the first helicopter is on the ground (never assemble too early).

(d) Plan the loads so that a force capable of defending itself constitutes the last lift (never leave less than a platoon-size force). A platoon leader/sergeant or squad leader, with radio, will be the last man out of a PZ. He will report to his commander that the PZ is clear of all personnel and equipment and immediately notify the pilot of the helicopter he boards. Plan for at least two extra helicopters to go into the PZ to lift out the last unit, when possible.

(e) Attack helicopter teams will be in direct communication with the ground force commander.

(2) Displacement of command post.

(a) Quartering party.

1. Composed of S1 or headquarters commandant, communications officer or representative and communications personnel, security element, and other necessary personnel.

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2. Selects location.

(b) Command and control helicopter will be utilized as main CP during movement.

(c) Quartering party duties upon landing include:

1. Laying out new CP.

2. Notifying old CP when new CP is ready for operation.

3. Insuring timely and orderly arrival and positioning of other CP elements.

4. Opening new CP. Officer in charge notifies commander or S3 when old CP has closed and when staff is operational in the new location.

5. Controlling responsibilities. Command and control helicopter will be used as tactical CP to control and direct subordinate elements during airmovement. The old CP is responsible for the dissemination of information and reports to higher and adjacent headquarters until that function is formally passed to the new CP.

(3) Security of aircraft in unit areas.

(a) Passive measures.

1. Laagers (occupancy, 1-36 hours):

a. Select proper terrain for laagers where access by enemy ground forces is difficult (e.g., laagers surrounded by water or swamps).

b. Site aircraft to blend with terrain and vegetation (e.g., locate parking areas in shadows, near trees).

c. Park aircraft in laagers so that attack helicopter teams can provide security along avenues of approach. Lift-off of aircraft, if attacked by enemy, is the responsibility of the aviation commander.

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d. Utilize troops in or near the laagers to provide perimeter security. Aviation unit will augment security.

2. Semipermanent facilities (occupancy, 1 to several weeks).

a. Use camouflage nets and natural materials to provide concealment.

b. Provide perimeter troop security around airfields and heliports.

c. Construct individual and helicopter bunkers and continue progressive improvement as time permits.

(b) Security of supporting aviation is the responsibility of the unit commander in whose area they are laagered or as designated by this headquarters.

5. LOGISTICS.

a. Supply.

(1) Accompanying supplies--all classes. Prescribed supplies will be established by this headquarters for each airmobile operation.

(a) Class I. Each soldier will carry three combat ration meals to be eaten on order.

(b) Class II and IV. Units take on 1-day supply of required combat essential expendables.

(c) Class III.

1. Vehicle fuel tank, three-fourths full; gas cans, filled to the weld.

2. Units take 1-day supply of oil and lubricants on vehicles.

(d) Class V.

1. Units maintain basic load at all times.

(Classification)

(Classification)

2. Available supply rates and priority of delivery specified in OPORD.

(e) Class IX. Units take combat essential prescribed load list (PLL).

(f) Water. Soldiers carry two full canteens and one bottle of water purification tablets.

(2) All classes of supply delivered using unit distribution.

(3) Routine, planned supplies will be prepackaged to maximum extent possible by S4.

(4) Emergency resupply containing ammunition, water, rations, and medical supplies will be prepackaged by the S4 and will be ready for delivery as required.

b. Salvage.

(1) Expedite recovery of aerial delivery containers, parachutes, cargo nets, and pallets; commanders guard against damage, destruction, or loss.

(2) Units in objective area establish salvage collecting points when appropriate and practical.

(3) Salvage will be reported to this headquarters for disposition instructions.

c. Captured Materiel. Captured materiel may be used on approval of this headquarters. Evacuation of captured material is accomplished, as the situation allows, through S4 channels.

d. Medical Service Support.

(1) Medevac of patients until linkup or withdrawal will be by air.

(2) Aid station location will normally be in battalion rear.

(3) Units report capture of medical supplies to battalion medical platoon personnel.

(Classification)

(Classification)

(4) Requests for evacuation will be submitted to battalion S1.

(5) PW casualties needing medical treatment will be evacuated through medical channels.

(6) Hospital locations will be announced for each operation.

e. Transportation and Troop Movement.

(1) Vehicular.

(a) Allocation of accompanying organic transport will be made by this headquarters.

(b) Captured vehicles will be used to the maximum to meet transportation requirements.

(2) Aircraft. Allocation of supporting aircraft will be made by this headquarters.

6. VISUAL AND SOUND SIGNALS.

a. Use as required and prescribed by CEOI and unit SOP and as modified by battalion OPORD.

b. Subordinate units employ only those pyrotechnics specifically authorized by OPORD or CEOI.

c. Each company will have personnel with helmet liners color-coded one of the standard colors: purple, yellow, green, and white to mark PZ(s)/LZ(s).

7. ELECTRONIC WARFARE.

a. Radio stations will not attempt to enter, jam, or otherwise interfere with unknown radio nets without prior approval of this headquarters.

(Classification)

(Classification)

b. Report (by a secure means) jamming or attempts to enter nets by unknown stations to the communications officer without delay. Give time, radio frequency, type of jamming, signal strength, readability, and identity (if obtainable) of interfering station.

COLEMAN
LTC

OFFICIAL

/s/BAXTER
BAXTER
S3

Distribution: A

Inclosures:

- 1 - Airmobile Formations and Battle Drill
- 2 - Airmobile Task Force Commander's Checklist
- 3 - Aviation Mission Commander's or Aviation Liaison Officer's Checklist

(Classification)

INCLOSURE 1 TO SOP FOR AMTF OPERATIONS

AIRMOBILE FORMATIONS
AND BATTLE DRILL

GENERAL

This inclosure prescribes the PZ and LZ aircraft formations used when conducting airmobile operations. It further prescribes the immediate action to be followed when personnel dismount at the LZ.

APPLICATION

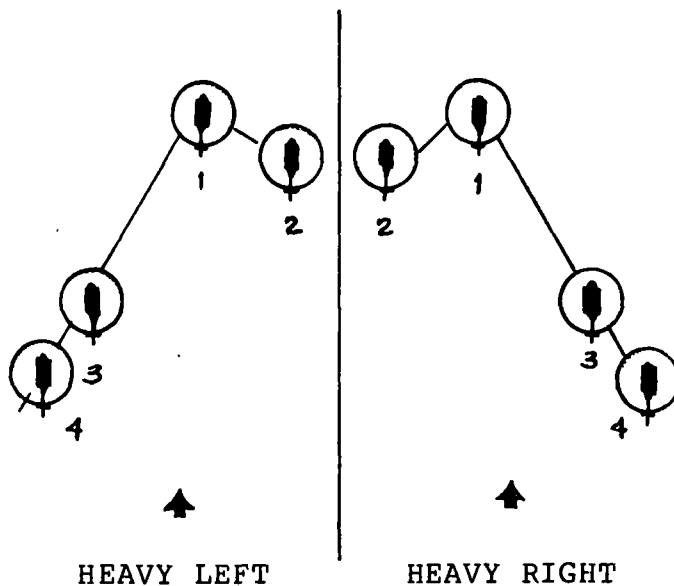
This inclosure applies to all organic and supporting units under the control of this battalion. All subordinate SOPs conform, and all personnel will be thoroughly familiar with these procedures.

FORMATIONS

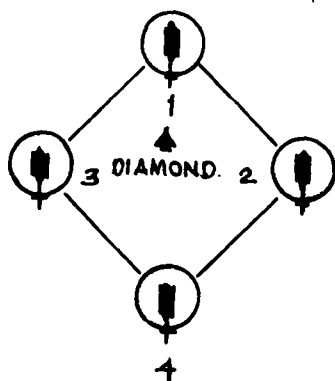
Aircraft supporting this battalion may use any of the following PZ/LZ configurations, as prescribed by the AMTF commander working in conjunction with the AMC.

HEAVY LEFT/RIGHT

Requires a relatively long, wide landing area; presents difficulty in pre-positioning loads; restricts suppressive fire by inboard gunners; provides firepower to front and flank.



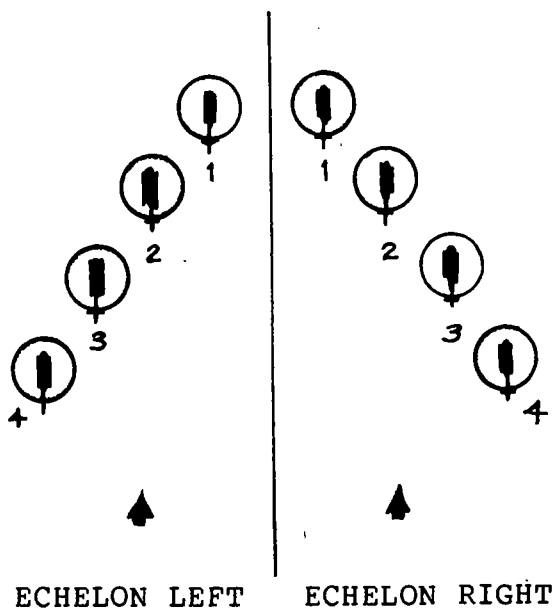
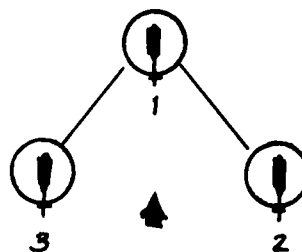
DIAMOND



Allows rapid deployment for all-round security; requires relatively small landing areas; presents some difficulty in pre-positioning loads; restricts suppressive fire of inboard gunners.

VEE

Requires relatively small landing area; allows rapid deployment of forces to the front; restricts suppressive fire of inboard gunners; presents some difficulty in pre-positioning loads.

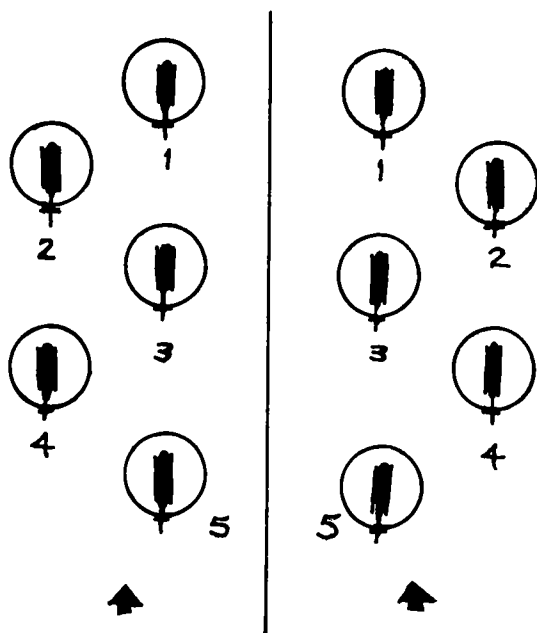
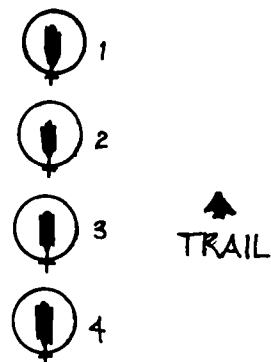


ECHELON LEFT/RIGHT

Requires a relatively long, wide landing area; presents some difficulty in pre-positioning loads; allows rapid deployment of forces to the flank; allows unrestricted suppressive fire by gunners.

TRAIL

Requires a relatively long landing area; allows rapid deployment of forces to the flank; simplifies pre-positioning loads; allows unrestricted suppressive fire by gunners.



STAGGERED
TRAIL LEFT

STAGGERED
TRAIL RIGHT

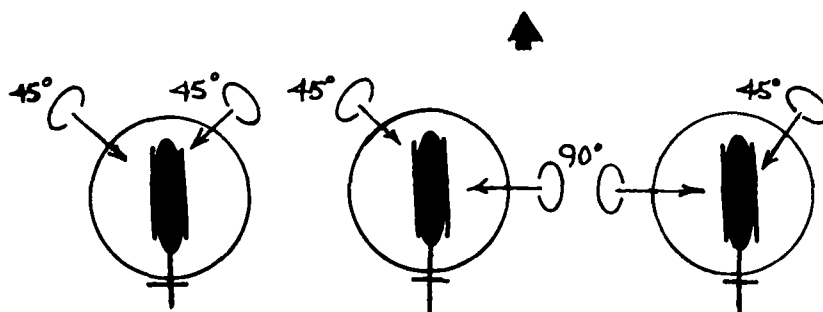
STAGGERED TRAIL LEFT/RIGHT

Requires a relatively long, wide landing area; simplifies pre-positioning loads; allows rapid deployment for all-round security; gunners' suppressive fire restricted somewhat.

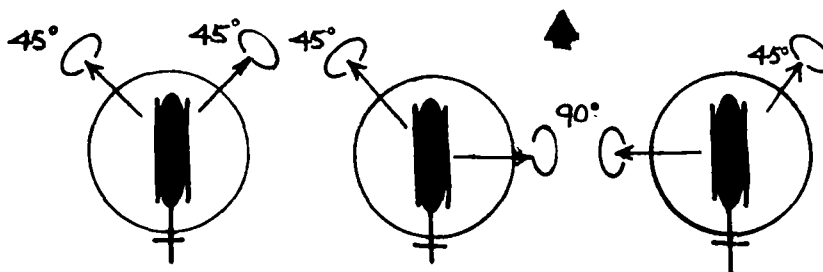
BATTLE DRILL

The first step in successful execution of airmobile battle drill is to insure that the aircraft is loaded so that dismounting soldiers react promptly and contribute to mission accomplishment.

Regardless of the formation used, individual aircraft will always be loaded in the following manner:

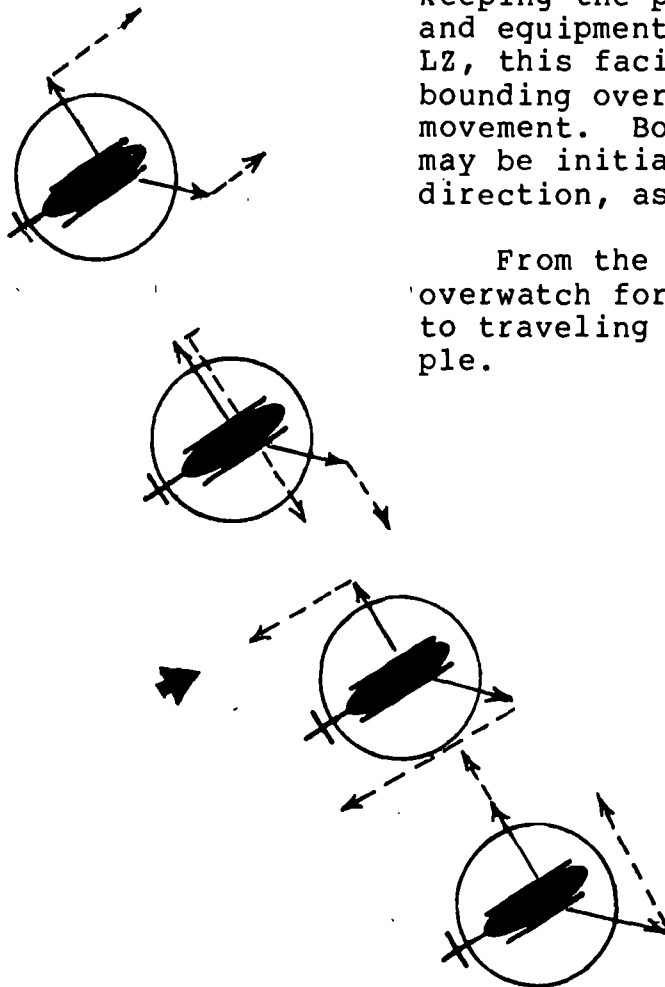


Dismounting in the LZ is the reverse of loading. Troops will position themselves to the same relative position in the LZ that they occupied in the PZ.



This method of loading and unloading should be slightly altered when aircraft are landing on a moderate slope.

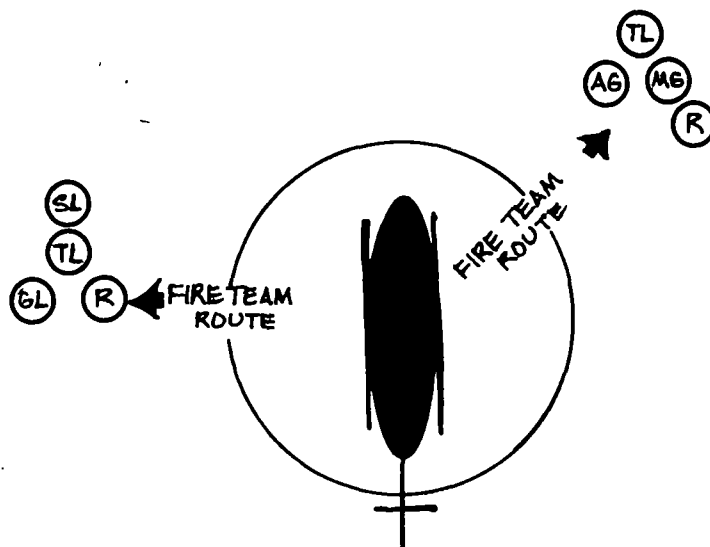
In so doing, all-round security is aided in both the PZ and LZ, and the need for complicated procedures is reduced by keeping the positions for men and equipment the same. On the LZ, this facilitates use of the bounding overwatch method of movement. Bounding overwatch may be initiated in any direction, as shown here.



From the initial bounding overwatch formation, transition to traveling overwatch is simple.

Broken lines indicate movement by bounding overwatch after departure of aircraft.

Dismounting into bounding overwatch.



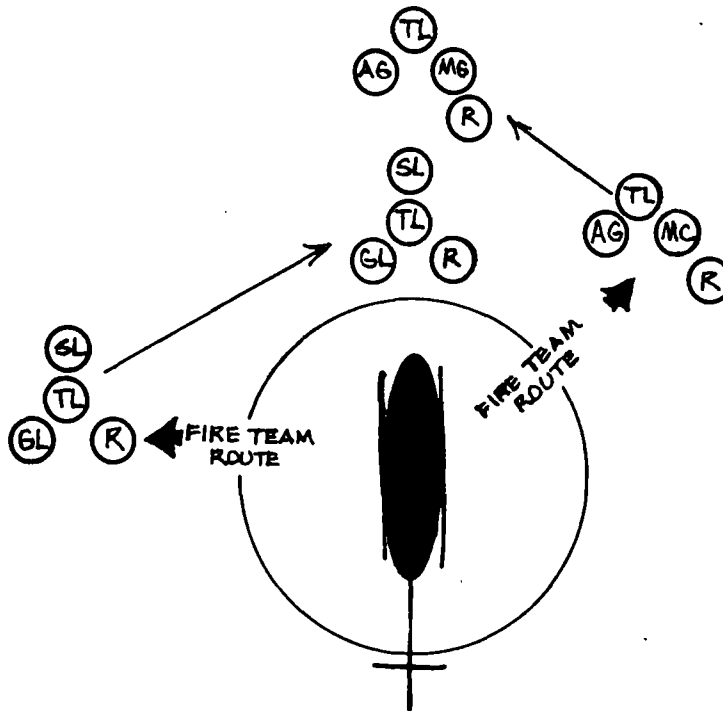
LEGEND

SL - Squad Leader
 TL - Team Leader
 GL - Grenade Launcher
 R - Rifleman
 MG - Machinegunner
 AG - Assistant
 Machinegunner

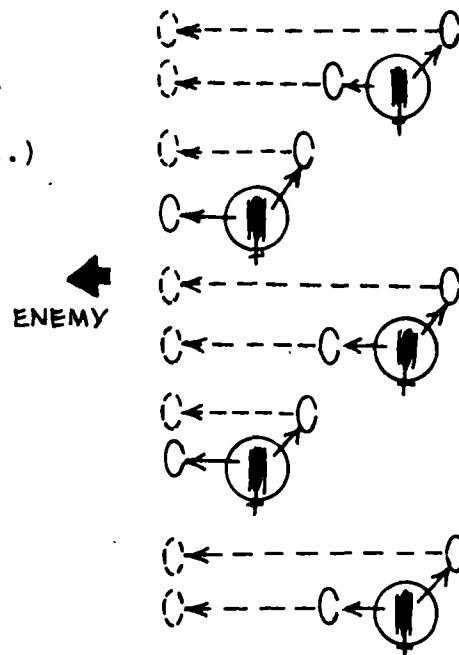
Squad organizes to fit eight-man ACL. (If the UH-60 Blackhawk is the aircraft used for the lift, the remaining squad members can be included in formation.)

If enemy contact is not expected, the squad can be assembled for traveling overwatch.

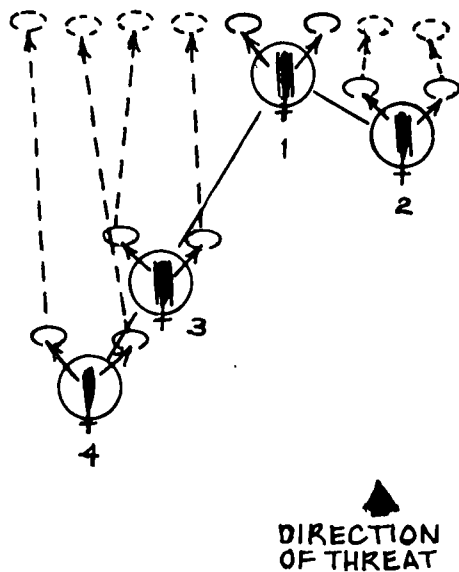
Dismounting and subsequently changing to traveling overwatch.



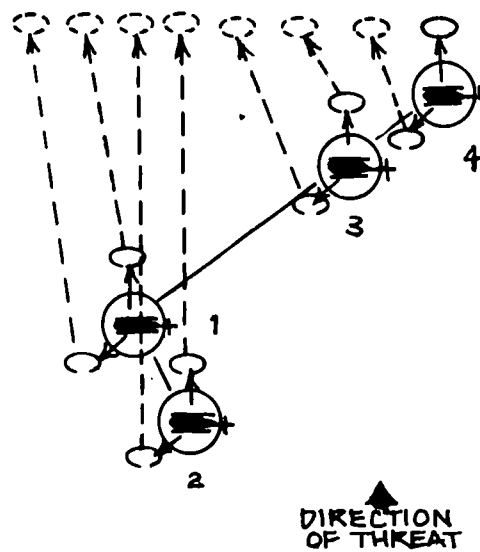
And, movement to a line or assault formation can be executed. (Additional squad members can be carried on Blackhawk.)



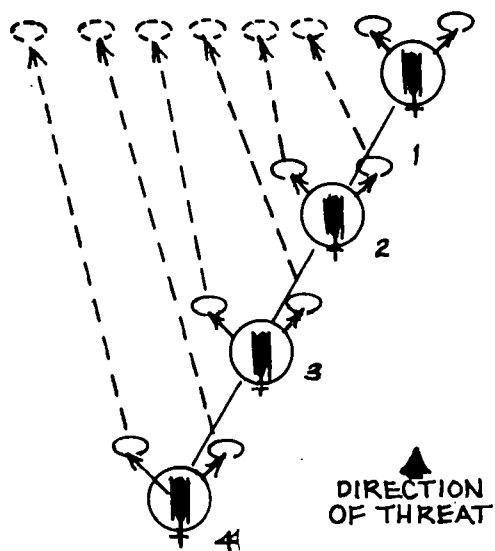
HEAVY LEFT



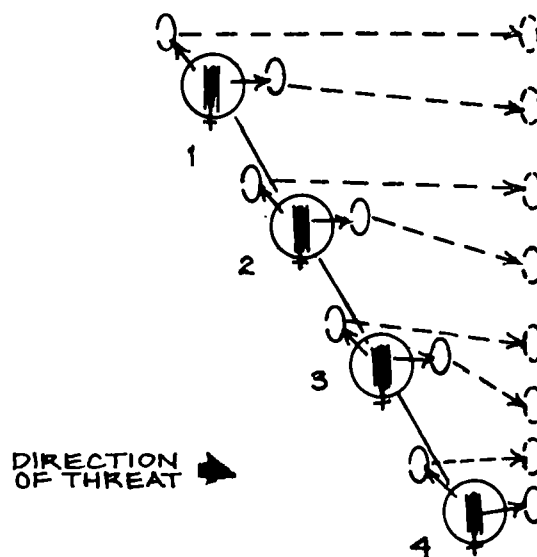
HEAVY RIGHT



ECHELON LEFT

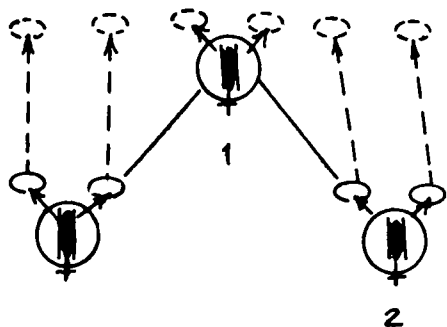


ECHELON RIGHT



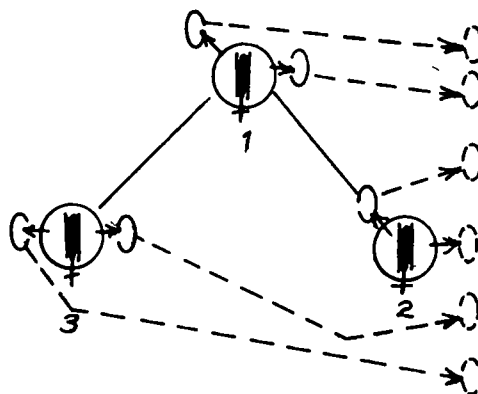
Broken line indicates movement after aircraft departure.

VEE



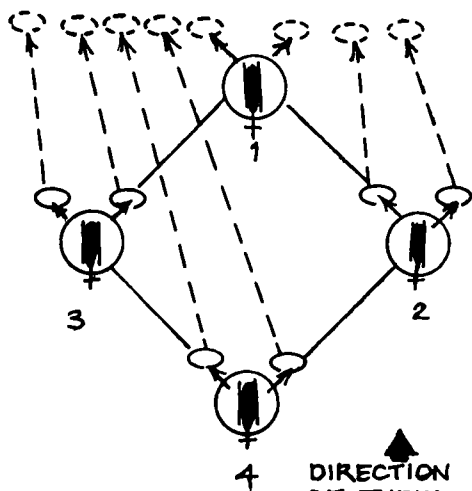
▲
DIRECTION
OF THREAT

VEE



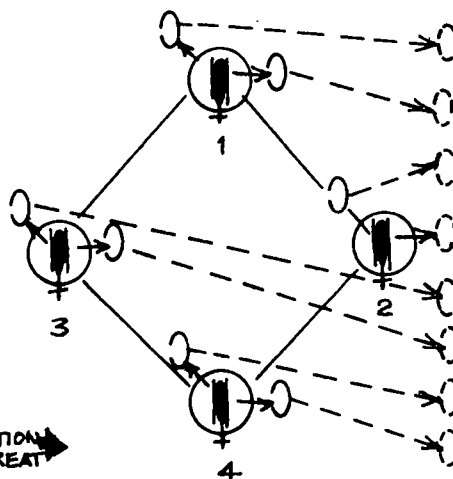
DIRECTION
OF THREAT →

DIAMOND



▲
DIRECTION
OF THREAT

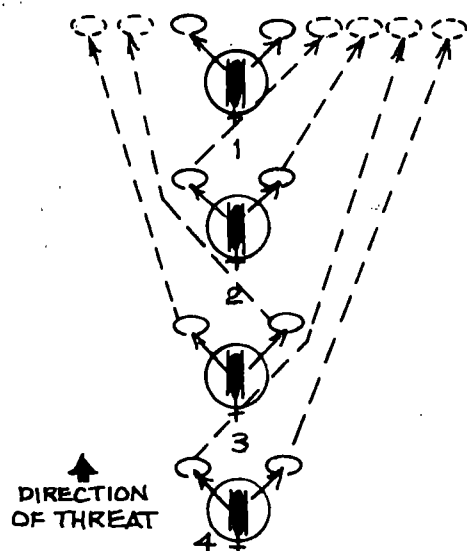
DIAMOND



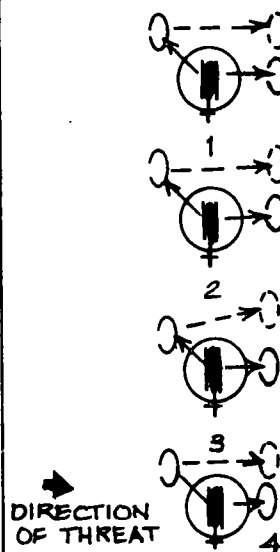
DIRECTION
OF THREAT →

Broken line indicates movement after aircraft departure.

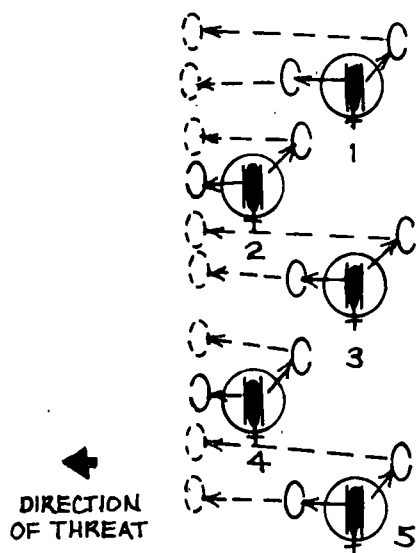
TRAIL



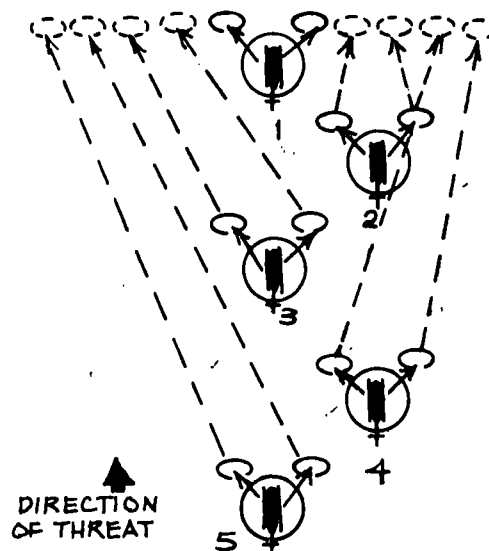
TRAIL



STAGGERED TRAIL LEFT



STAGGERED TRAIL RIGHT



Broken line indicates movement after aircraft departure.

INCLOSURE 2 TO SOP FOR AMTF OPERATIONS

AIRMOBILE TASK FORCE COMMANDER'S CHECKLIST

This list is designed to summarize the essential items that should be included in the planning phase of an airmobile operation by AMTF commanders. The list should be referred to throughout the planning process to insure that major planning steps are not omitted. If there is doubt as to how to accomplish a particular task or item, refer to the appropriate section of FM 90-4 or unit SOPs.

ACTION UPON RECEIPT OF ORDERS

Analyze mission(s).

Determine specified and implied task(s) and objective(s).

Develop time schedule.

Obtain aircraft ACL from AMC/air liaison officer (ALO).

Issue warning order.

GROUND TACTICAL PLAN

Choose, as appropriate, assault objectives.

Designate LZ(s) available for use. Consider distances from LZ(s) to objective.

Establish D-day and H-hour (time of assault).

Identify special tasks required to accomplish mission.

Means available to accomplish mission include:

Organic troops (consider distance from present location to PZ).

Aviation resources to include attack helicopter or air cavalry units, and Air Force support (establish liaison with AMC/ALO) (initial information, support requirements from ground unit to include forward arming and refueling point (FARP)).

Engineers.

Signal to include aerial radio relay.

Medical (medevac).

Fire support.

Close tactical air (TACAIR) support.

Field artillery within range.

Other indirect fire weapons (mortar and naval gunfire).

Preparation fires for LZs (signals for lifting/shifting).

Flight corridors.

Air defense suppression.

Control measures needed.

Subsequent operations (e.g., defense linkup, withdrawal) that may be conducted.

NOTE. Announce concept to staff and subordinate units as soon as possible to facilitate planning.

INTELLIGENCE INFORMATION AND REQUIREMENTS

Enemy locations to include air defense positions.

Commander's aerial recon of objective area (if practical).

Aerial reconnaissance (side-looking airborne radar (SLAR) aerial photos).

Sensor reports.

Terrain study.

Weather forecast.

Latest intelligence summary (INTSUM).

PW handling procedures.

Civilian control procedures.

LANDING

Selection of primary and alternate LZs (capacity).

LZ identification procedures for landing sites include:

Colored smoke.

Panels.

Flares.

Lights.

Use of pathfinders.

Landing formation(s).

Approach and departure directions.

LZ preparation fires to support landing plan and ground tactical plan include:

Use of TACAIR (close air support (CAS), air defense suppression, and air cover).

Use of indirect fire weapons.

Use of attack helicopters/units.

Other fire support considerations include:

Shifting of fires.

Lifting of fires.

Suppression of enemy air defenses.

AIRMOVEMENT

Flight routes (primary-alternate-return) require the following data:

 RPs; direction and distance to LZs.

 SP; air control points (ACP), CCP, and RPs.

 Phase lines (if used).

 Estimate time en route.

 Maneuver areas for attack helicopter and air cavalry teams.

 Laagers, to include location, mission, and security.

Airmovement table to implement airmovement includes:

 Units to be lifted.

 Number and type lift helicopters allocated to each unit.

 Aviation units that will support unit.

 Lift-off times.

 Routes.

 Unit LZs.

 H-hour (landing time of initial serial).

Alternate communications plan includes:

 FM (frequency modulated).

 UHF (ultra high frequency).

 VHF (very high frequency).

Visual/audio signals.

Aerial radio relay.

LOADING

PZ assignment by unit (primary-alternate) (bump and/or straggler contingency plan).

Holding areas.

Routes from assembly areas to holding area to PZ(s).

Attack helicopter team utilization (overwatch and security) includes:

En route to PZ.

While lift aircraft are in PZ.

En route to LZ.

Recon of LZ; marking of LZ.

SUPPORT PLANS FOR CONDUCT OF AIRMOBILE OPERATIONS

Alternate plans and procedures due to weather (H-hour increment to delay operation).

Downed helicopter procedures to include:

Crew and passenger duties.

Aircraft disposition instruction.

Rally points.

Escape and evasion instructions.

Laager sites.

Rules of engagement.

Deception plans that will be used.

Spare aircraft available.

Chemical, biological, and radiological (CBR) employment and counteremployment.

Reconnaissance (air-ground) that will be conducted.

Straggler control procedures.

Reporting (en route, lift-off, touchdown, intelligence, and contact).

Aircraft disposition after assault.

ACTIONS THAT MUST BE COMPLETED

Warning orders.

Liaison officer (LO) (receive and dispatch).

Attachments and detachments.

Issue commander's concept (time and place).

Briefings (time and place).

Preparation of OPORD.

Issue OPORD (time and place).

LOGISTICS REQUIREMENTS

Class V resupply.

Feeding plan.

Water.

Medevac (call sign, frequency, location, and procedures).

Refueling (location of FARP, ammo available).

DEBRIEFING

Lessons learned:

Ground units.

Aviation units.

Actions taken for correction.

INCLOSURE 3 TO SOP FOR AMTF OPERATIONS

AVIATION MISSION COMMANDER'S
OR AVIATION LIAISON OFFICER'S
CHECKLIST

This list is designed to summarize the essential items included in the planning phase of an airmobile operation by the AMC. The list is referred to throughout the planning process to insure major planning steps are not omitted. If there is doubt as to how to accomplish a particular task or item, refer to the appropriate section of FM 90-4 or unit SOP(s).

ACTIONS PRIOR TO DEPARTURE FOR SUPPORT UNIT

Meet attack helicopter and pathfinder representatives at prearranged site. Obtain briefing from operation's officer to include:

Support unit:

Mission.

Location.

Contact officer.

FM frequency.

Call sign.

Reporting time.

Mission:

Requirements for aerial reconnaissance:

Utility helicopters.

Attack helicopters/teams.

Observation helicopters.

Air cavalry teams.

Special mission requests.

Number of aircraft, by type, that are available for the operation (status of assets).

Utility, observation, cargo, or scout helicopters.

Attack helicopters.

ACL for each type aircraft:

Number of troops____; pounds of cargo____.

Number of pathfinders available and time available.

Pathfinder equipment available.

Specific problem areas or requirements that may affect support of ground unit (FARP location and time of operation). (Estimated refueling time, and refuel-rearm plan.)

Obtain necessary equipment that will be required at or by supported unit.

Aircraft or vehicle.

Maps, overlays, photos.

Radios, CEOI for exchange.

Personal gear.

Additional headsets for reconnaissance, if required.

Check with AMTF commander for special instructions.

NOTE. Confirm if supported unit is prepared to receive LO.

ACTIONS EN ROUTE

Establish and maintain communications.

Obtain status of fires and permission to enter area of operations.

ACTIONS AT SUPPORTED UNIT LOCATION

Report to supported commander, S3, or LO.

Brief supported unit on number/type aircraft available, ACL, and other essential information.

Obtain initial briefing on the following:

Enemy situation.

Friendly situation.

Ground tactical plan (make map overlays).

Supported unit requirements.

Additional participating aviation units. Coordinate and integrate plans as necessary.

Assist supported unit in planning the following:

Movement to PZ for ground and aviation unit and control facilities.

Loading.

Location and selection of PZ.

Special PZ marking procedures.

Aircraft marking procedures.

Landing formation and direction.

Loads:

Troops.

Cargo.

Communication control procedures.

PZ control (obtain call sign and frequency).

Manifesting (completion of airloading table).

Priorities of bump by aircraft.

PZ and lift-off times.

Airmovement.

Flight route. Provide guidance and give technical approval on selection of the following:

SP.

ACPs.

CCPs.

RP.

Alternate and return flight routes.

Formation: select en route formation that gives the most control and is least vulnerable to enemy interference; provide guidance for selection of PZ/LZ formations.

Altitude and speed.

Overwatch and security plan for attack and scout helicopters.

Fire support plan en route.

Airmovement table (assist in completing).

Pathfinder support (finalize).

Landing.

Touchdown time(s) (in terms of H-hour).

LZ designations and locations:

Size and description.

LZ marking and procedures.

Landing directions.

Landing formation.

Traffic pattern for subsequent lifts.

Communications, control procedures, and use of pathfinders.

LZ preparatory and suppressive fires.

CAS (start time, duration, target and type ordnance, and attack direction).

Indirect fires (start time, duration, target and type fuze, special instruction).

Plan for attack helicopter unit's scheme of maneuver and plan for overwatch and security (start time, duration, special instruction, attack direction).

Firing of lift helicopter weapons (provide suppressive fires upon landing).

Fire plan of debarking troops.

Call signs/frequency signals for lifting/shifting support fires.

Refueling requirements.

Location of FARP(s).

Time required.

Aircraft maintenance.

Downed aircraft procedures.

Spare aircraft procedures.

ACTIONS PRIOR TO DEPARTURE FROM SUPPORTED UNIT

Obtain copies of OPORD with overlays and annexes.

Confirm all times.

Last-minute weather check.

Mission procedures (delay increments).

Alert procedures.

Debriefing for commander.

ACTIONS UPON RETURN TO AVIATION UNIT

Inform unit commander.

Brief personnel, as appropriate, on all above information.

Maintain close liaison with support unit.

EXECUTE MISSION AS PLANNED

MISSION DEBRIEFING FOR AVIATION UNIT

AFTER-ACTION REPORT

(Classification)

Copy No ____ of ____ copies
 1st Bn, 66th Inf
 EASTOVA, PACTLAND
 061400 Feb 19 ____
 YZ 5

OPORD 2

Reference: Map, Series R640, EASTOVA, PACTLAND, sheet 6066
 (STONA-KAVA), edition 1, 1:50,000.

Time Zone Used Throughout the Order: ALPHA

Task Organization:

Co A	Co C	<u>Aviation Support</u>
1 AT Sec	1 AT Sec	21st Cbt Avn Bn
1 Redeye Tm	1 Redeye Tm	Co A (lift)
1/2/B/21 Engr		Co B (lift)
		Co C (attack)
		2d Plt, 385th Aslt Spt Hel Co
Co B	<u>Bn Control</u>	
1 AT Sec	Hv Mort Plt	
1 Redeye Tm	Scout Plt	
2/2/B/21 Engr	AT Plt (-)	
	Redeye Sec (-)	
	2/B/21 Engr (-)	
	Tm/1/A/21st CEWI Bn	

1. SITUATION

- a. Enemy Forces. Current INTSUM.
- b. Friendly Forces.

(1) 2d Bde, 52d Div, attacks 072300 Feb to secure high ground vic QA337790 to QA349795 (PL BLUE), continues the attack to secure high ground vic QA315830 to QA326835 (PL GREEN), and prepares to continue the attack to the north.

(Classification)

(Classification)

(2) TF 2-76 Inf attacks along Axis GO to secure Obj TIN, assists TF 1-4 Armor in passage of lines. After passage of lines, reverts to bde reserve, follows TF 1-4 along Axis SWIFT.

(3) TF 1-4 Armor initially follows TF 2-76, then passes through TF 2-76 after Obj TIN has been secured, and attacks along Axis SWIFT to secure Obj SILVER. On order, links up with AMTF 1-66 at linkup point 2.

(4) TF 2-77 Inf attacks along Axis RUN to secure Obj BRONZE, assists TF 1-6 Armor in passage of lines, and follows TF 1-6 along Axis FAST.

(5) TF 1-6 Armor initially follows TF 2-77, then passes through TF 2-77 after Obj BRONZE has been secured, and attacks along Axis FAST to secure Obj IRON. On order, links up with AMTF 1-66 at linkup point 1.

(6) Elements of 15 (Allied) Tactical Air Force (TAF) support TF 1-66 during airmobile operation.

c. Attachments and Detachments. Task organization (effective 070800 Feb).

2. MISSION

On order, AMTF 1-66, in conjunction with the continuation of the 2d Bde ground attack, conducts an airmobile assault to secure Obj GOLD, bridge crossing the NILO River vic QA317839, and establishes and defends airhead until linkup with elements of 2d Bde.

3. EXECUTION

a. Concept of Operation. Annex A (Operation Overlay)

(1) Maneuver. This operation will be conducted in three phases. Phase I commences when the 2d Bde penetrates the enemy's defensive belt vic PL BLUE (QA337790-QA349795) and begins an exploitation to secure PL GREEN (QA315830-QA326835). AMTF 1-66 conducts airmobile operations to secure bridge vic QA317839. Phase II, AMTF 1-66 establishes and defends airhead,

(Classification)

(Classification)

links up with elements of 2d Bde. Phase III, AMTF 1-66 relieved from OPCON to 2d Bde and prepares for an airmobile operation into an area to be specified by 52d Div.

(a) Phase I. AMTF 1-66 conducts airmobile operation and attacks to secure bridge at QA317839. Commencing at H-30, Co A moves by air along flight route DOG and conducts airmobile assault into LZ ALPHA (H-hour); attacks to secure Obj FAY. Two minutes following Co A's lift, hv mort and scout plt move by air to LZ ALPHA. Scout plt moves mort plt by ground vehicle to position vic QA321838. Scout plt secures position and mortars provide indirect fire support to task force. Upon completion of Co A's lift, Co B moves by air along flight route DOG and conducts airmobile assault into LZ BRAVO; attacks to secure Obj ANN. Co C moves by air along flight route HAWK and conducts airmobile assault into LZ CHARLIE, attacks to secure Obj SUE.

(b) Phase II. All companies defend airhead in sector. Cos A and C conduct linkup operations with TF 1-4 Armor and TF 1-6 Armor, respectively. Scout plt placed OPCON to Co B and screens north of bn sector.

(c) Phase III. After 2d Bde crosses NILO River, AMTF 1-66 is relieved from OPCON to the bde and conducts airmobile operation to locations to be specified by 52d Div.

(2) Fires.

(a) Phase I. Supporting fires during movement along flight routes will be provided by TACAIR. C/21st CAB will provide security and overwatch. An airstrike will be placed on Obj FAY commencing at H-15. C/21st CAB will provide suppressive fire on and around LZ ALPHA commencing at H-2. Hv mort plt displaces to loc vic QA321838; fires 10-min preparation on LZs BRAVO and CHARLIE for the insertion of Cos B and C, respectively. Preparation commences at H+38 on LZ BRAVO and H+50 on LZ CHARLIE. Priority of fire to unit being inserted.

(b) Phase II. Hv mort plt GS, priority of fire to Co A. When TF 1-4 Armor reaches PL GREEN, the 2-631st FA (155, SP) will be placed in direct support of AMTF 1-66. At that time, priority of artillery fire will be to Co A; priority of hv mort fire to Co C. During defensive phase, any company

(Classification)

(Classification)

not in enemy contact will provide, on approval of AMTF hq, supporting mortar fire to any other unit in the AMTF that comes under enemy attack.

b. Co A.

(1) Conduct airmobile assault into LZ ALPHA and attack to secure Obj FAY.

(2) Defend airhead in sector.

(3) Be prepared to assist in repelling enemy attack on Co B's position.

(4) Secure linkup point 2 and be prepared to link up with TF 1-4 Armor.

c. Co B.

(1) Conduct airmobile assault into LZ BRAVO and attack to secure Obj ANN (bridge over NILO River).

(2) Defend airhead in sector.

(3) Be prepared to assist in repelling enemy attack on Co A's position.

(4) Be prepared to receive OPCON of scout plt during Phase II.

(5) Employ scout plt to screen north in AMTF sector.

(6) Be prepared to release scout plt on order.

d. Co C.

(1) Conduct airmobile assault into LZ CHARLIE and attack to secure Obj SUE.

(2) Defend airhead in sector.

(3) Be prepared to receive OPCON of scout plt in the event of an enemy ground attack during Phase II.

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5. COMMAND AND SIGNAL

a. Signal.

(1) Current CEOI is in effect.

(2) Listening silence is in effect until enemy contact. Secure voice will be used when possible.

b. Command. TF command group is initially in command and control helicopter, then at QA321838.

Acknowledge.

SMITH
LTC

OFFICIAL:

s/McClendon
MC CLENDON
S3

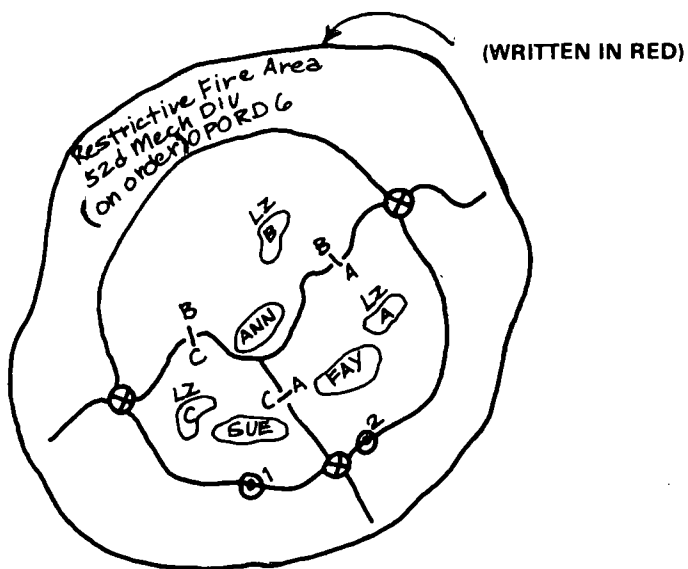
Annexes: A--Operation Overlay.
B--Airmovement Table.
C--Target Reference/Checkpoints (omitted).

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Annex A (Operation Overlay) to
OPORD 2, AMTF 1-66 Inf.
Reference: Map, Series R640,
EASTOVA, PACTLAND, sheet 6066
(STONA-KAVA), edition 1, 1:50,000.

85
+
31



NOT TO SCALE

83
+
33

PL GREEN

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(Classification)

(4) Secure linkup point and be prepared to link up with TF 1-6 Armor.

e. Scout Plt.

(1) Conduct airmovement to LZ ALPHA; move to loc vic QA321838; secure position for hv mort plt.

(2) Use vehicles to move hv mort plt from LZ ALPHA to loc vic QA321838.

(3) On order, relieved of mission of securing hv mort plt; placed OPCON to Co B.

(4) Be prepared to be released from OPCON to Co B during Phase II and placed OPCON to Co A or C on order.

f. AT Plt (-).

(1) Conduct airmovement to LZ ALPHA; move to tac CP/hv mort plt location (QA321838).

(2) Cover armor approaches to the tac CP from the east.

(3) On order, move to counter enemy armor attacks from any direction.

(4) Be prepared for employment in any company sector.

g. Hv Mort Plt.

(1) Phase I.

(a) Conduct airmovement to LZ ALPHA.

(b) Move to loc vic QA321838.

(c) GS; priority of fires to unit being inserted during airmobile assault.

(d) At H+38, fire 10-min preparation on LZ BRAVO.

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(e) At H+50, fire 16-min preparation on LZ CHARLIE.

(2) Phase II. GS; priority of fire to Co A during Phase II until 2-631st FA becomes DS to TF; then, priority of fires to Co C.

h. Redeye Sec (-). GS; priority to tac CP, mort plt, and combat trains in order.

i. 2/B/21 Engr (-). GS; priority of work assisting in preparing position for tac CP. Be prepared to clear bridge over NILO River of demolitions if enemy has prepared bridge for destruction.

j. Coordinating Instructions.

- (1) Companies report securing objectives.
- (2) PW collection point located QA321838.
- (3) H-hour is on order.
- (4) Aircraft allocation and airmovement table, annex B.
- (5) PZ control will be SOP.
- (6) All units be prepared to conduct airmobile assault to another location after 2d Bde crosses NILO River.
- (7) EEI: Will the enemy attempt to reinforce his positions on Obj GOLD? If so: when? in what strength? from what direction?

4. SERVICE SUPPORT

a. General. Bn Admin/Log Order 1. TF combat trains loc QA321838.

b. Medical Evacuation. TF aid station at combat trains, QA321838. 1/A/478th Air Evacuation Co DS to bde loc at QA343732; call sign and frequency, see current CEOI.

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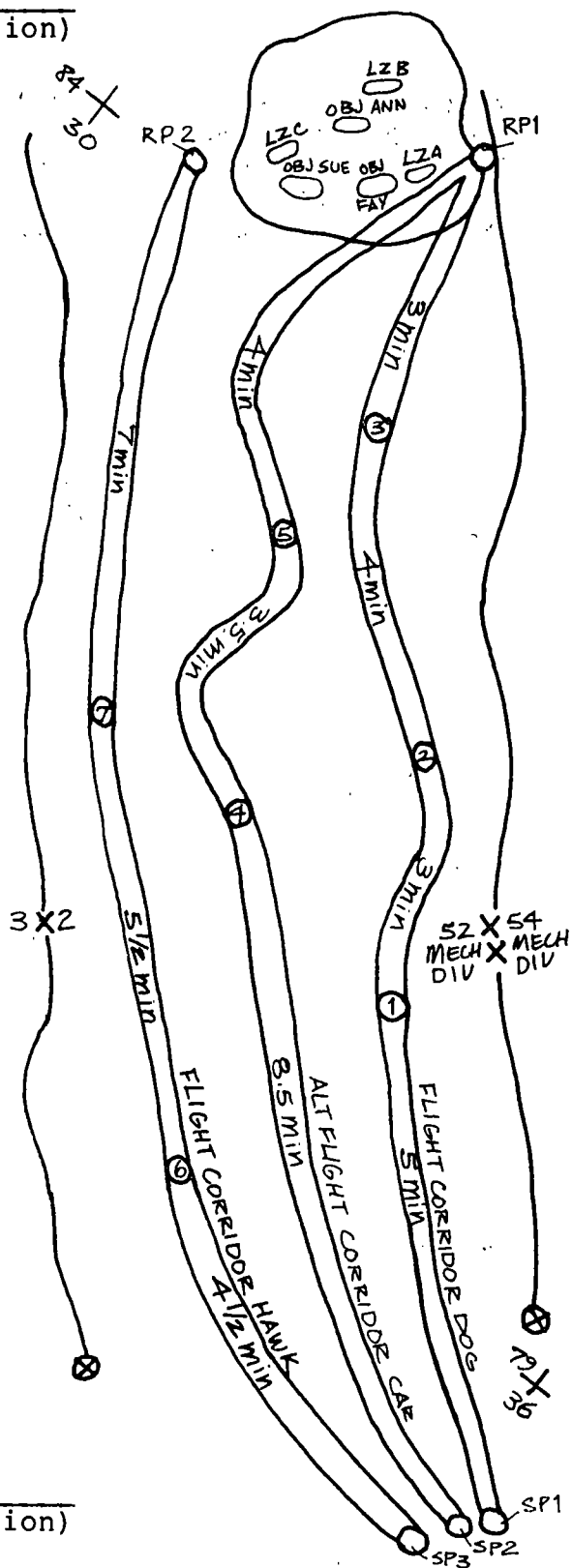
Appendix 1 (Flight Route Overlay)
to Annex A (Operation Overlay) to
OPORD 2 AMTF 1-66 Inf.

Reference: Map, Series R640,
EASTOVA, PACTLAND, sheet 6066
(STONA-KAVA), edition 1, 1:50,000.

1. Capacity of LZs:
LZ A: 6 UH-1H or 3 CH-47's.
LZ B: 10 UH-1H or 6 CH-47's.
LZ C: 10 UH-1H or 6 CH-47's.
2. Speed of aircraft: 80 NM/hr.
3. Time from RP to LZ A and B,
route DOG, 3 min.
4. Time from RP to LZ A and B,
route CAR, 3 min.
5. Time from RP to LZ C, route
HAWK, 2 min.
6. Time from PZs to SPs, 2 min.

NOT TO SCALE

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ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, 1-66 INF -

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Copy No. _____ of _____ Copies
Hqs. 1 Bn. 66th Inf
061400 FEB 79 -

Time Zone Used Throughout the Order: ALPHA

P - Primary
A - Alternate

AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
A/21 CAB	A/1-66	1	1	1-6	RA Alpha	H-30	H-20	H-18	H-3	RA Alpha A-Bravo	H Hour	Flt Rt. P-Dog A-Car Rtn-Car
			2	7-12		H-30	H-19	H-17	H-2	Diamond Formation	H+1	
B/21 CAB	A/1-66		3	13-18		H-30	H-18	H-16	H-1		H+2	Bump 14, 24, 18
2/385th	Sgt Plt/1-66		4	19-24		H-30	H-17	H-15	H-1r		H+3	
			5	25-29	RA Alpha 2 A-Alpha 3	H-30	H-15	H-13	H+2		H+5	Bump 29
B/21 CAB	Mortar Plt/1-66		6	30-35	RA Alpha 4 A-Alpha 3	H-25	H-13	H-11	H+4		H+7	2/385th release two helicopters after first lift
			7	36-40		H-25	H-12	H-10	H+5		H+8	Bump 40, 39
2/385th	A/1-66 TAC CP		9	41-42	RA Alpha A-Alpha 1	H-25	H-11	H-9	H+6		H+9	ALL SERIALS FOLLOW SOP ON RETURN FLIGHT OVER FRIENDLY POSITIONS
A/21 CAB	B/1-66	2	1	1-6	R Bravo	H+21	H+30	H+32	H+7	R Bravo	H+50	Flt Rt. P-Dog A-Car Rtn-Car
			2	7-12	A-Bravo 1	H+22	H+31	H+33	H+8	S/L		
			B	13-18		H+23	H+32	H+34	H+9		H+52	Bump 12, 16, 17
				1-5	FARP 1	H+75	REFUEL					FARP locations: FARP 1 QA 339784
				6-10	FARP 2	H+76	REFUEL					FARP 2 QA 338772
				11-15	FARP 3	H+77	REFUEL					FARP 3 QA 350781
				16-18	FARP 4	H+78	REFUEL					FARP 4 QA 352776
2/385th	ATP(4)/ 1-66 REDEYE/1-66	3		1-5	RA Alpha 2 A-Alpha 3	H+26	H+35	H+37	H+52		H+54	Flt Rt. P-Dog A-Car Rtn-Car Bump 5, End of Mission 2/385th
B/21 CAB	C/1-66	4	1	1-6	R Charlie A-Charlie 1	H+30	H+41	H+43	H+60	P-Alpha	H+62	Flt Rt. P-Hawk, A-Car, Rtn-Car
			2	7-12		H+30	H+42	H+44	H+61	Diamond Formation	H+63	Bump 14, 16, 17
			3	13-17		H+30	H+43	H+45	H+62		H+64	End of Mission for Co B
A/21 CAB	B/1-66	5	1	1-4	R Bravo	H+100	H+110	H+112	H+127	R Bravo	H+129	Flt Rt. P-Car, A-Dog, Rtn-Car
			2	5-8	A-Bravo 1	H+101	H+111	H+113	H+128		H+130	Bump 8
A/21 CAB	C/1-66	6	1	1-5	R Charlie A-Charlie 1	H+102	H+112	H+114	H+131	R Charlie	H+133	Flt Rt. P-Hawk, A-Car, Rtn-Car
			2	6-9		H+103	H+113	H+115	H+132		H+134	Bump 9 Upon completion of lifts 5 and 6 report to Bn S4 at Pz Victory and move combat trains and any other loads that the S4 designates

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APPENDIX E

PATHFINDER OPERATIONS

This appendix is a guide for commanders and their staffs of all units employing Army pathfinders during airmobile operations.

The tactics, techniques, and procedures described for various type missions are flexible. They are guides that commanders may modify to meet varying operational conditions. (For detailed information, see FM 57-38.)

Section I. ORGANIZATION FOR COMBAT

PATHFINDER

A pathfinder is trained to control Army aviation in any phase of airmobile operations.

ORGANIZATION

When assigned to an aviation battalion, pathfinders are organized into teams (from two to six). Each team consists of six men. This organization of pathfinders corresponds to the two to six lift companies of the aviation battalion. Each team can support missions assigned to a lift company.

As a planning guide, each team supports a company-size landing/pickup zone (LZ/PZ).

PRIMARY MISSION

The primary pathfinder mission in airmobile operations is to provide navigational assistance (electronic and visual), and to control helicopters conducting combat operations (to include air assaults and airmovement).

SECONDARY MISSION

Their secondary missions are to provide advice and physical assistance to lifted units

in the planning of airmobile operations; prepare and position personnel and loads for airmovement.

CAPABILITIES

Pathfinders perform the following tasks:

Use maps and aerial photos to assist in the selection of LZs and PZs in area selected for airmobile operations.

Enter area of operation by foot, boat, vehicle, aircraft, parachute, or any combination thereof.

Prepare LZs and PZs to include establishing and operating visual and electronic navigational aids and removal of minor obstacles.

Furnish ground-to-air voice radio communications to aircraft for the purpose of

providing information, guidance, and air traffic control (ATC) within the area of operations (AO).

Assist in the assembly of air-delivered troops, supplies, and equipment.

Provide advice and limited physical assistance in the preparation and positioning of troops, supplies, and equipment for airmovement.

Provide limited weather observations to include wind velocity and direction.

LIMITATIONS

Personnel and equipment organic to the pathfinder unit limit employment to aircraft guidance and other primary tasks.

It is necessary that these units be augmented by personnel from a supported unit to perform the following:

Provide security.

Remove major obstacles on the PZ/LZ.

Recover and assemble equipment and supplies.

Operate additional radio nets and telephones.

Transport items of equipment.

Section II. CONDUCT OF OPERATIONS

The pathfinder unit possesses the flexibility to be employed effectively in different situations. It can accomplish missions in widely separated areas in all types of warfare, weather, and terrain. Pathfinder procedures in the conduct of operations vary according to tactical considerations, aircraft, and ground unit standing operating procedures (SOP).

PLANNING COORDINATION

The airmobile task force (AMTF) commander issues a warning order alerting the pathfinder unit to its support mission. The pathfinder commander joins the AMTF staff in planning the operation and attends the initial AMTF briefing with the air mission commander (AMC).

INITIAL BRIEFING

The following actions are accomplished at this briefing:

- The pathfinder commander provides the AMTF commander and AMC with the status of pathfinder personnel and equipment that are available for the upcoming operation. He also determines what support he must provide other task force (TF) elements (artillery, signal, engineer, and other support units).

- The operational site is selected and the pathfinder commander accompanies the AMC and AMTF commander on an aerial reconnaissance of the operational area, if one is conducted. Based on the reconnaissance, the pathfinder commander assists in selecting landing sites. If time or enemy situation precludes the

conduct of an aerial reconnaissance, he makes a map and/or photo study of the operational area.

- The pathfinder commander coordinates the PZ operation with the PZ control officer (PZCO). This coordination includes a plan for security elements and the troop assembly point.

- Air routes into the LZ/PZ are coordinated by the AMC, PZCO, and the pathfinder commander who obtains flight (en route) and landing headings to provide the necessary LZ/PZ landing information.

COORDINATION ITEMS

The pathfinder commander coordinates with the AMC on the following items:

- Operational site location.
- Location of communication checkpoints (CCP)/alternate CCPs.
- Time the pathfinder team(s) is to be operational (onsite).
- Aircraft information: formation, time interval, number of flights.
- Pathfinder transportation: Air Force aircraft, helicopter, land, vehicle, boat, foot, or combination thereof.
- Pathfinder transportation station time.
- Routes into the objective areas: vehicle route, river route, flight route.
- Call signs: aircraft, pathfinders, supported units, other friendly units.
- Frequencies: primary/alternate (aircraft, pathfinder, supported units, other friendly units, homing beacon).
- Fire support: request frequency of support (indirect fire weapons, tactical air [TACAIR]).
- Forecasted light and weather conditions: ceiling, visibility, temperature (high, low), end of evening nautical twilight (EENT), and beginning of morning nautical twilight (BMNT).
- Logistical support: location of aid station; prisoner of war (PW) collection point; ammunition; food; water; and petroleum, oils, and lubricants (POL).
- Alternate plans: evacuation plan, escape and evasion plan - where? when? and how?
- Location of friendly units.
- Pathfinder authority.
- Support personnel required: who, where, when, and how employed.
- What will the NO LAND signal(s) be?
- How will obstacles be marked?
- How will the objective LZs be marked? How will they be identified from the air?
- Color scheme for lights (if used) for night operations.

SEQUENCING PATHFINDERS INTO OBJECTIVE AREA

The tactical situation will dictate how and when pathfinders enter the objective area. They often accompany the initial elements of the assault echelon into the LZ and control all subsequent lifts into the area. Their arrival earlier would not allow preparatory fire on the LZ and might compromise the operation.

Where difficult landing conditions exist, pathfinders enter the LZ ahead of the first lift to clear obstacles and provide aircraft control. Pathfinders may parachute into or near the LZ; or they may infiltrate to the LZ or release point on foot in conjunction with the reconnaissance or security forces.

CONTROL CENTER

It may be established at each LZ/PZ. From the control center, pathfinders control aircraft in and around the LZ/PZ.

The control center location is selected by the pathfinder site commander to facilitate visual control of air traffic.

A control center is organized to meet mission requirements.

RELEASE POINTS (RP)

Flight route RPs are not manned or marked unless they are located in a relatively secure area or difficult navigational problems are anticipated.

When the RP is manned, pathfinders operate navigational aids and monitor the air traffic control (ATC) frequency. They respond to pilot requests for help in locating the RP. To prevent compromise of their position, navigational aids are turned on for short periods at prescribed times or on prearranged signals.

COMMUNICATION

Pathfinders communicate by ground-to-air voice radio. It is one of the first items placed into operation and is the last item taken out of operation. Pathfinders use radio procedures to achieve the necessary speed and clarity of transmission; radio discipline is practiced by pathfinders and aviators alike.

Unnecessary messages are eliminated. A pathfinder ATC center must be used for air traffic control purposes only, except in emergencies.

When possible, pathfinders monitor major unit command nets to keep aware of situations that could influence their operations.

Positive communications are established between pathfinder ATC facilities and collocated fire support elements. This insures that timely, accurate information concerning friendly fires can be made available to aircraft.

Section III. TERMINAL GUIDANCE BY SUPPORTED GROUND UNITS _____

If a requirement exists to assist aircraft in areas where pathfinders are not available, terminal guidance is furnished by selected personnel of the supported ground unit.

CAPABILITY REQUIREMENTS

Support and ground units should be prepared to do the following:

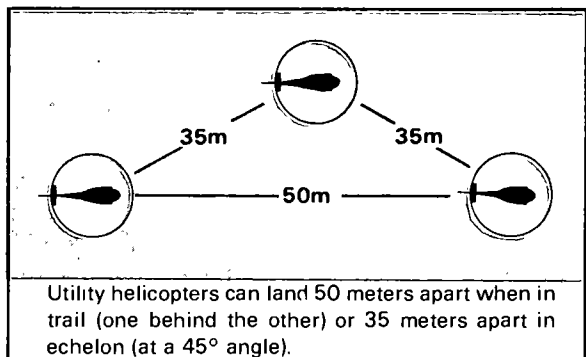
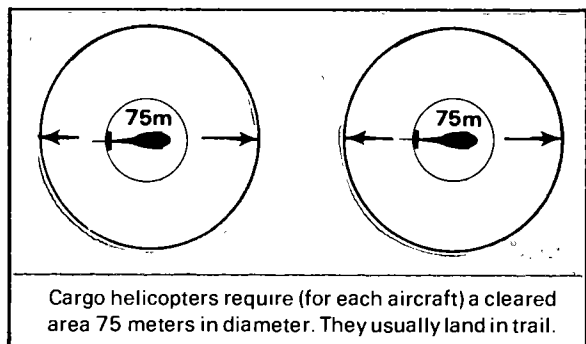
Provide essential flight information to inbound aircraft to include (but not limited to):

Inbound headings.

Landing direction.

Wind direction.

Determine the number of aircraft a landing site will safely accommodate. (Landing criteria are reflected in diagrams.)



APPENDIX F

TRAINING

Section I. GENERAL

The Army's primary mission in peacetime is to prepare to win the land battle. The modern battlefield is more lethal than ever before and demands that every unit be combat-ready in order to survive and succeed. Success depends on a unit's ability to cope with the dynamics of battle.

♦The training program must constantly move the unit toward being ready NOW. *Training is a full-time job for all commanders, regardless of other operations or missions.*

Section II. AIRMOBILE TRAINING

LEVELS OF TRAINING

Airmobile training is integrated into unit programs on a routine basis to develop capability at each level from squad through battalion.

OBJECTIVES

Commanders at all echelons are responsible for their unit's airmobility training. The objective is for units to conduct airmobile operations with speed, precision, and confidence. Infantry units, as well as other combat, combat support, and combat service support units, should routinely receive such training.

SMALL-UNIT/TACTICS

Standard infantry small-unit tactics and techniques are the basis for the ground phase

of airmobile operations. The commander insures that all units are proficient in these tactics. He then ties in training on rapid assembly, organizing combat battle formations, and loading maneuver elements to take advantage of the speed and mobility of airmobile operations.

SMALL-UNIT/LEADER/TRAINING

The commander trains his small-unit leaders to operate independently of their parent organization to accomplish their part of the overall mission. He insures that units are trained in techniques and procedures peculiar to airmobile operations.

MOBILITY

The commander trains his units to travel light, consistent with the mission, taking only necessary equipment and supplies.

SOP/TRAINING

Procedures for conducting airmobile operations are included in unit standing operating procedures (SOP). The SOPs should cover all the routine actions that a unit might have to complete during an operation.

The training program includes sufficient training to insure that personnel are familiar with and proficient in the procedures contained in the SOP.

During training, the information in the SOP is evaluated for completeness, simplicity, and applicability. Procedures are refined as necessary.

LAND NAVIGATION

Land navigation proficiency by all leaders is imperative to success. Leaders must learn to locate positions, navigate rapidly to specific points, and use the terrain to their advantage. They must also learn to remain ground-oriented while riding in a helicopter.

FIRE SUPPORT/UNITS

The fire support officer and fire support team from the fire support unit train with the maneuver unit. They become familiar with the maneuver unit's SOP and teach selected personnel of maneuver units how to plan for, employ, call for, and adjust artillery and mortar fire. This makes it imperative that the habitual working relationship between the fire support and maneuver units be maintained to insure mutual understanding of operational requirements, capabilities, and limitations. That relationship is one in which the same fire support unit supports a particular maneuver unit for each operation.

During field training exercises, the fire support and maneuver units work closely together to insure that SOPs are compatible and that personnel are adequately trained to maximize the capabilities of each unit.

AVIATION UNITS

Aviation unit commanders assist ground unit commanders in the development of training in the technical aspects of aviation support and participate in combined aviation and ground unit training. They also insure that their units are technically proficient.

The habitual working relationship between the maneuver and aviation units is maintained.

Section III. DEVELOPING AIRMOBILE TRAINING PROGRAMS

A training program is designed to achieve specific standards and improve weak areas. Unit training should be concentrated in areas where unit weaknesses exist rather than in areas where performance is good.

INFANTRY AND AVIATION

Combined infantry and aviation training is integrated into the tactical training of larger units. Ground and aviation units train together in all types of weather and reduced visibility. Both elements improve procedures to develop and refine compatible SOPs for a high level of readiness. (This is important for mechanized infantry in the heavy divisions which have inadequate organic aviation support for extensive airmobile operations.)

CONDUCT OF TRAINING

Airmobile training begins by training individuals in airmobile techniques and procedures. Proficiency in these provides a foundation for collective training of ground units and support aviation units.

Aircraft organic to the division, as well as nondivisional aviation assets, may be used in squad, platoon, and company level training.

USE OF MOCKUPS

Constraints on aviation unit flying hours will limit the amount of flight time available for training. Therefore, much of the individual and small-unit training will have to be accomplished using aircraft mockups. Plywood and other materials from salvage sources can be used to build the mockups. They may be made man-portable and are relatively inexpensive. They can be used to train individuals on how to approach a helicopter, how to get on it, and how to get off. Airmobile battle drill can be taught by using mockups. Personnel from the combat support company (CSC) can be trained to load weapons, equipment, supplies, and ammunition on helicopters by practicing on mockups.

If the unit has a local training area of adequate size, several mockups can be used to practice battle drill to include the way the unit should offload aircraft in the landing zone (LZ). The mockups can be placed in different patterns to simulate different landing formations. Four mockups should be sufficient for platoon training.

FAMILIARITY WITH HELICOPTERS

Commanders should be aware that many soldiers have never been near a helicopter. An attempt should be made to have at least one helicopter available early in the training cycle.

INDIVIDUAL AND UNIT TRAINING

The following subjects should be included in appropriate phases of individual and unit training:

GROUND UNITS

- | | |
|--|--|
| <ul style="list-style-type: none"> ● Subjects required to attain proficiency in ground combat skills and tactics. ● SOP battle drills. ● Physical and psychological preparedness. ● Methods and procedures for control and guidance of aircraft. ● Safety procedures in and around aircraft. ● Control and adjustment of fire support means. | <ul style="list-style-type: none"> ● Subjects required to attain proficiency in preparing internal and external aircraft loads. ● Practical experience in land and aerial navigation. ● How to work with attack helicopter units. ● Aircraft troop commander duties. ● Rappelling from helicopters. ● Downed aircraft procedures. ● LZ/PZ selection. ● PZ control. |
|--|--|

AVIATION UNITS

- | | |
|--|---|
| <ul style="list-style-type: none"> ● Operational planning. ● Nap-of-the-earth flying techniques and navigation. ● Formation flying. ● Marginal weather and reduced visibility flying techniques. ● Camouflage and security of aircraft. ● Employment of aerial weapon systems. | <ul style="list-style-type: none"> ● Aircraft maintenance in a combat field environment. ● Unit control of aircraft and air traffic. ● Pathfinder procedures and techniques. ● Flight operations in confined areas with maximum loads. ● Operations with external loads. ● Aerial reconnaissance and security techniques. |
|--|---|

SUBJECTS COMMON TO AVIATION AND GROUND UNITS

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Threat organizations and doctrine. ● Recognition of Threat vehicles and antiaircraft weapons and knowledge of their capabilities. ● Conduct of liaison and coordination. ● Forward refueling techniques. | <ul style="list-style-type: none"> ● Training in defense against nuclear, biological, and chemical weapons. ● Signal security, discipline, and electronic countermeasures. ● Aerial medical evacuation procedures. ● Procedures for aerial resupply. ● Training in airmobile SOPs. |
|---|---|

STAFF TRAINING

Staffs of ground and aviation elements must be trained in planning and conducting airmobile operations with emphasis on the following:

Capabilities and limitations of airmobile operations.

Command and staff relationships.

Development of a plan using reverse planning sequence.

Fire support means and control and fire planning for airmobile operations.

Logistical procedures and requirements for airmobile operations.

Preparation of the airmovement table.

PREPARATION

Training time and resources must be used efficiently. Each element of the unit should be prepared to do its part before

joining support units for combined exercises. For example:

Squad/Platoons

Airmobile battle drill.

Preparation of internal and external loads.

Clearing of LZ.

Understanding the SOP.

Commanders and Staffs

Command and staff planning.

Command and control.

Implementing the SOP.

NOTE: Commanders and their staffs train using tactical exercises, command post exercises (CPX), training exercises, terrain model exercises, or combined arms tactical simulators. These allow commanders and staffs to learn, practice, and master their jobs without wasting troop training time.



Section I. PREPARATION OF THE AIRMOVEMENT TABLE

COLUMN 1

The aviation unit commander will enter the unit designation (by subelement) in this column (e.g., A/121CAB designates Co A, 121st Combat Aviation Battalion).

COLUMN 2

The ground unit's designation (by subelement) will be entered in this column in its order of commitment (e.g., A/1-66 designates Co A, 1st Bn, 66th Infantry).

COLUMN 3

Enter lift numbers, beginning with No. 1. When all available aircraft have been listed (see column 5 with 36 aircraft available), then lift No. 2 and so on.

NOTE: Elements of one or more units may be moved in the same lift.

COLUMN 4

Serials within each lift will be numbered sequentially, beginning with No. 1. On lift 2, the serial numbers will again start with No. 1.

Serials are created by subdividing lifts. This is accomplished to —

- Reduce span of aircraft control.
- Maintain control when multiple pickup zones (PZs), landing zones (LZs), and/or flight routes are used.
- Maintain control when the elements of the lift are separated.

COLUMN 5

Loads are numbered sequentially, one for each aircraft allocated, within a lift. The number of loads per serial is dependent upon the number of PZs, LZs, and flight routes to be used in the operation.

COLUMN 6

Pickup zones should be listed as primary (prim) and alternate (altn) for each serial. This provides continuity when naming PZs. If they are named blue, green, amber, and white, it facilitates their marking by pathfinders (with the colored light sets available for night operations and smoke or panels for day operations). Red is used to mark obstacles. Formations desired in a PZ should be listed under the alternate PZ code name (e.g., staggered trail right [S/R], staggered trail left [S/L]). For refueling, list the forward arming and refueling point (FARP) designation where the aircraft are to be refueled.

COLUMN 7

List loading times and/or refueling times.

Loading time is the time at which troops and equipment begin loading into the aircraft. Load

time will be specified by the PZ control officer. When FARP numbers are listed in column 6, and "refuel" is listed in column 8, the time in column 7 indicates the time aircraft are scheduled for refueling.

COLUMN 8

The lift-off time is the time an aircraft departs the PZ. This time should be planned to allow aircraft to depart the PZ, assemble into their in-flight formation, and arrive at the start point (SP) at the required time. Normally, 2 or 3 minutes prior to SP time is sufficient. When refueling is entered in this block and subsequent blocks, the aircraft is scheduled to refuel.

COLUMN 9

List the time aircraft are scheduled to cross the SP. It normally takes 2 to 3 minutes to fly from the PZ to the SP (SP 3 to 5 km from PZ). To arrive

at a realistic SP time, determine the flight time between the SP and release point (RP). Subtract this time from the RP time, and the result is the SP time.

COLUMN 10

List the time aircraft are scheduled to cross the RP. To derive the time required to fly from the SP to the RP, measure the distance of the route (on a map), obtain the average ground speed from the AMC, and compute.

The RP time is normally 2 to 3 minutes or 3 to 5 km from the LZ, which facilitates closely coordinated fire support control.

COLUMN 11

List primary and alternate LZs. They will be designated for each serial. Unit SOPs dictate the method of marking LZs. The desired landing

formation will be listed under the LZ code name (e.g., S/R, S/L).

COLUMN 12

List the landing time for the first aircraft of each serial. All times are listed in terms of H-hour (time the first aircraft of the first serial touches down in the LZ). All times in columns 7, 8, 9, and 10 are listed with reference to H-hour, either minus (time prior to H-hour) to plus (time after H-hour).

COLUMN 13

Remarks will contain any information necessary to insure that the airmovement table is understood, e.g., flight altitude, flight routes (prim, altn, return [rtn]), and sequence of bump by load. (Bump 17, 14 means that load 17 would be bumped first.)

Reference: Map OPORD						Classification						Copy No _____	
P-Primary A-Alternate Time Zone Used Throughout the Order: ALFA												Hq _____	
												Place _____	
												Date & Time _____	
												Msg Ref No _____	
1	2	3	4	5	6	7	8	9	10	11	12	13	
AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ZONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS	
A/121 CAB	A/1-66	1	1	1-6	P-COW	H-19	H-17	H-15	H-2	1,A-1A S/L	H	P-FLT RT SIERRA A-XRAY ROMEO (RTN) 8UMP 17, 14	
			2	7-12	A-COW 1	H-18	H-16	H-14	H-1				
			3	13-18	S/L	H-17	H-15	H-13	H		H+1 H+2		
B/121 CAB	B/1-66		4	19-27	P-DOG	H-19	H-17	H-15	H-2	2,A-3 S/L	H	P-FLT RT ZULU A-OSCAR (RTN) 8UMP 21, 29	
			5	28-36	A-DOG 1	H-18	H-16	H-14	H-1				
					S/L						H+1		
A/121 CAB B/121 CAB	C/1-66	2	1	1-9	P-CAT	H+18	H+20	H+22	H+35	5,A-4 S/R	H+37	P-FLT RT SIERRA A-XRAY ROMEO (RTN) 8UMP 7, 17	
			2	10-18	P-CAT 1	H+19	H+21	H+23	H+36				
			3 4	19-27 28-36	S/L	H+20 H+21	H+22 H+23	H+24 H+25	H+37 H+38		H+39 H+40		
A/121 CAB	C/1-66	3	1	1-9 10-18	FARP #1 FARP #2	H+55 H+56	REFUEL REFUEL						

APPENDIX B
AIRMOBILE PLANNING FORMS

FOLDOUT

Section II. PREPARATION OF THE AIRLOADING TABLE

COLUMN 1

The information in this column is provided by the squad leader to the platoon leader (after the squad leader has been given the allowable cargo load [ACL]). The squad leader(s) will normally write this information on sheets of notebook paper which will be assembled by the platoon leader. This list of personnel and equipment can also serve as the aircraft manifest. Also, it may indicate a sequence of bump for the personnel on board if a pilot indicates that he cannot safely lift the planned ACL. The bump sequence will start at the bottom of the list and go upward. That means that the person listed last on the list would be bumped first. If two people had to be bumped, the last and next to last person listed would be bumped.

COLUMN 2

At battalion level, the PZ, alternate (altn) PZ, and PZ formation will normally be determined by the battalion pickup zone control officer (PZCO). At company level, this information will be taken from the battalion airmovement table.

COLUMN 3

The PZ arrival time of the unit will be designated by the PZCO. This is the time when the troops arrive at the PZ to prepare aircraft loads adjacent to proposed touchdown points for the helicopters.

COLUMN 4

This information will be taken from the battalion airmovement table. It is the time that troops begin loading on the aircraft.

AIRLOADING TABLE								
Reference: OPORD			Classification			Copy No _____		
Time Zone Used Throughout the Order: ALFA						Hq _____		
						Place _____		
						Date & Time _____		
						Msg Ref No _____		
1	2	3	4	5	6	7	8	9
Personnel & Equipment	PZ	PZ Arrival Time	Loading Time	Avn Unit	Lift No.	Serial No.	Load No.	Remarks
1-1-A-1/66 INF 1-1A SSG JONES 1-1A SGT SELECIA 1-1A SP4 MELINDEN 1-1-A SP 4 BAIER 1-1-A PFC NANNI 1-1-A PFC BYRD 1-1-A PVT JOHNSON 1-1-A	BLUE ALTN BLUE 1 S/L	H-34	H-19	A/121CAB	1	1	1	SEQUENCE OF BUMP, SERIAL 1, LOADS 4 & 5
1 & 2-A-1/66 INF SSG SLOAN 2-1-A SGT ALVIS 1-1-A SP4 WILLIAMS 1-1-A PFC YOUNG 1-1-A PFC GREEN 2-1-A PVT BARAJAS 1-1-A SGT ULMER 2-1-A	BLUE ALTN BLUE 1 S/L	H-34	H-19	A/121CAB	1	1	2	SEQUENCE OF BUMP, SERIAL 2, LOADS 9 & 10

HELIicopter CHARACTERISTICS AND CAPABILITIES

AIRCRAFT	OH-6A	OH-58A	OH-58C	UH-1H	UH-60	AH-1S	AH-64	CH-47B	CH-47C	CH-54B
CREW	2	2	2	2	2	2	2	3	3	3
EXTERNAL CARGO										
Maximum recommended external load.	NA	NA	NA	4,000	8,000	NA	NA	20,000	20,000	25,000
Rescue hoist capability.	NA	NA	NA	600	600	NA	NA	600	600	NA
Winch capability.	NA	NA	NA	NA	NA	NA	NA	3,000	3,000	25,000
PASSENGER CAPACITY										
Troop seats. ¹	2	2	2	11	11-14	0	0	33	33	POD-45
Litters.	0	0	0	6	4	0	0	24	24	POD-24
OPERATIONAL CHARACTERISTICS										
Maximum allowable gross weight (lbs).	2,400	3,000	3,200	9,500	20,250	10,000	17,400	40,000	46,000	47,000
Basic weight (lbs).	1,163	1,700	1,800	4,900	10,984	6,900	9,500	19,194	19,772	21,000
Useful load (lbs). ²	1,237	1,300	1,400	4,100	9,266	3,100	7,900	20,806	26,238	26,000
Internal fuel capacity (lbs/gal).	400/61.5	475/73	475/73	1,450/224	2,353/362	1,703/262	2,346/361	4,036/621	7,353/1,181	8,775/1,350
Normal cruising speed (kns). ³	100	100	100	100	145	130	180	135	135	115
Endurance at cruising speed (hrs+mins).	2 + 30	2 + 10	2 + 00	2 + 15	2 + 18	2 + 30	2 + 45	1 + 30	2 + 30	2 + 15
Fuel consumption per hour (lbs/gal). ³	139/20	180/28	200/31	605/93	840/130	725/110	900/140	2,519/387	2,578/396	3,990/613
Grade of fuel.	JP-4	JP-4	JP-4	JP-4/5	JP-4	JP-4/5	JP-4	JP-4	JP-4	JP-4

¹Aircraft subsystem configuration will determine troop seat availability.

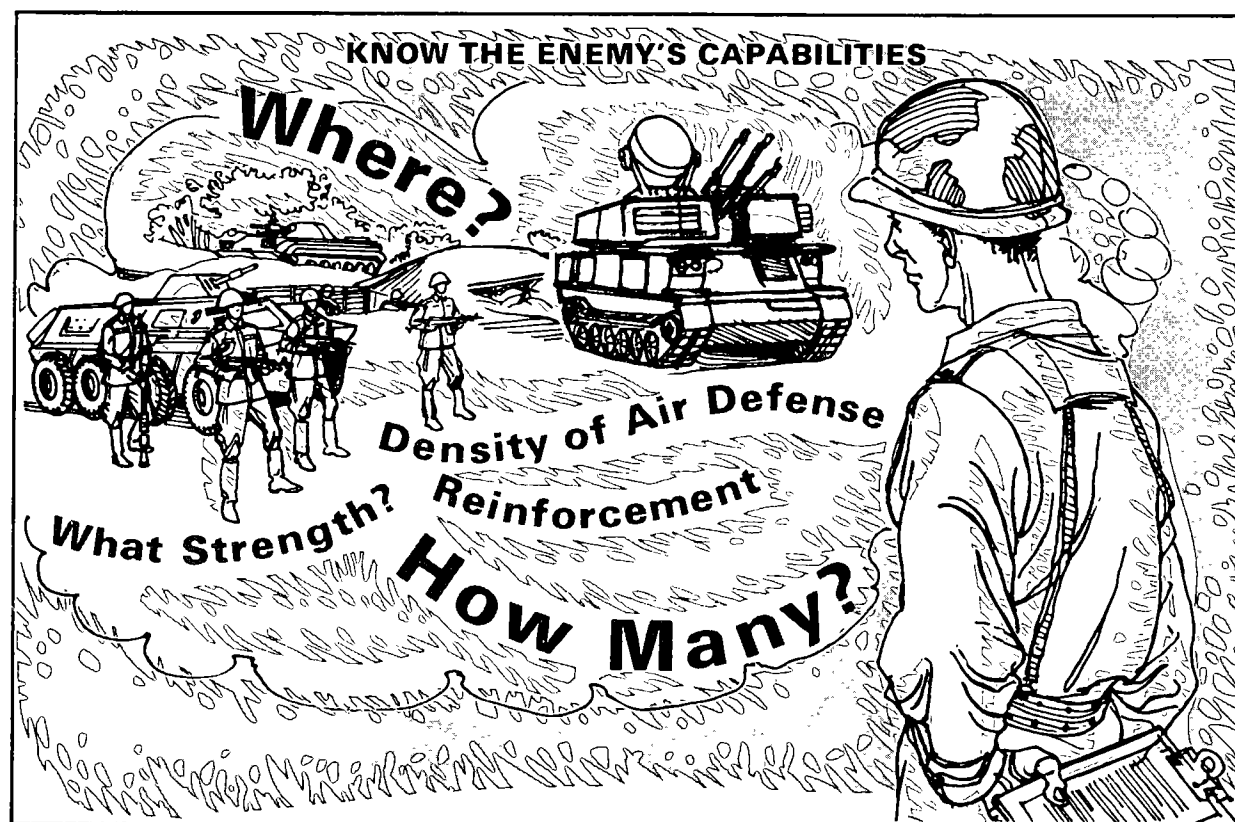
²The load-carrying capability of an aircraft. It includes the payload, crew, and usable fuel and oil required for the mission. It is the difference between "maximum allowable gross weight" and the "basic weight."

³Endurance, airspeed, and fuel consumption are only representative of the aircraft shown. Actual endurance and fuel consumption vary widely with the altitude, mission, gross weight, and airspeed at which the aircraft is being operated.

Section III. EMPLOYMENT PRINCIPLES

AMTF operations are guided by certain principles of employment. Careful application of these principles will enhance the airmobile force's overall combat effectiveness. They are general guidelines and must be considered carefully in each situation.

- See the battlefield.
- Fight as a combined arms team.
- Concentrate combat power at the critical time and place.
- Utilize terrain, effects of weather, and light conditions for survivability.
- Maintain flexibility.
- Suppress or destroy enemy weapons and acquisition means.
- Maintain control.



COMPLETED AIRMOVEMENT TABLE

- 1 PICKUP AND LANDING ZONES (PAGE 4-13).

2 PZ FORMATION AND LZ FORMATION (PAGE 4-15).

3 LIFTS, SERIALS, AND LOADS (PAGE 4-19).

4 FLIGHT ROUTES/LIFTED UNITS (PAGE 4-26).

5 LANDING TIME (PAGE 4-28).
- 6 RELEASE POINT TIME (PAGE 4-29).

7 LIFT-OFF TIME/SP TIME. (PAGE 4-31).

8 LOADING TIME (PAGE 4-32).

9 LOADING TIME, SECOND LIFT(PAGE 4-33).

10 SECOND LIFT (PAGE 4-34).

11 REFUELING (PAGE 4-36).

ANNEX B (AIRMOVEMENT TABLE) to OPORD 6, TF 1-67
Time Zone Used Throughout the Order ALPHA

(Classification)

Copy No. _____ of _____ Copies
Hqs 1 Bn 67th Inf
101500 Jan B ____

P - Primary
A - Alternate

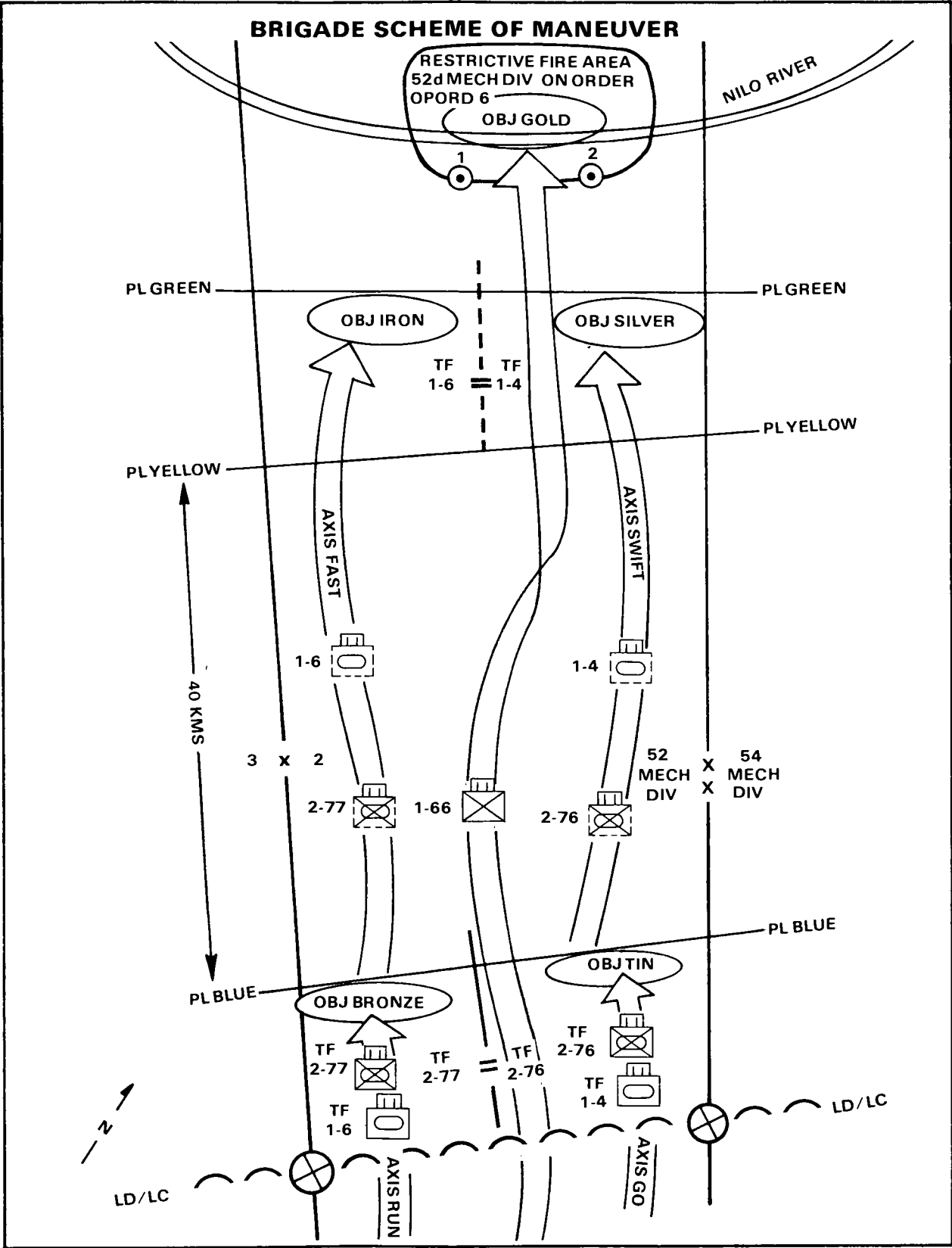
AVN UNIT	LIFTED UNIT	LIFT	SERIAL	LOADS	PICKUP ONE	LOADING TIME	LIFT-OFF TIME	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS
1854	A	3	1	1-4	GREEN S/L ALTN YELLOW	H-16	H-12	H-10	H-2	GREEN S/L ALTN YELLOW	H-HOUR	BUMP 4,7,10,15 FLT RT P-EAGLE A-HAWK
			2	5-8		H-15	H-11	H-9	H-1		H+1	
			3	9-12	YELLOW S/L	H-14	H-10	H-8	H	GREEN S/L	H+2	
			4	13-16		H-13	H-9	H-7	H+1		H+3	
	B	2	1	1-4	WHITE S/R	H+12	H+16	H+18	H+28	GREEN S/R	H+20	BUMP 4,8,12,16 FLT RT P-HAWK A-BAT
			2	5-8		H+13	H+17	H+19	H+29		H+31	
			3	9-12		H+14	H+18	H+20	H+30		H+32	
			4	13-16		H+15	H+19	H+21	H+31		H+33	
		11	2	1-4	FARP#1	H+40		REFUEL				FARP LOCATION-A6382 641
	CSC	3	1	5-8	PURPLE	H+46	H+49	H+52	H+60	PURPLE	H+62	BUMP 5,8,10 FLT RT P-OWL A-FALCON
	CSC B		2	9-12	ALTN WHITE	H+47	H+50	H+53	H+61	ALTN WHITE	H+63	
			3	13-16		H+48	H+51	H+54	H+62		H+64	
			4	1-4		H+55	H+58	H+61	H+69		H+71	
		11	3	5-8	FARP#1	H+77		REFUEL				
	C	4	1	9-12	WHITE S/L	H+83	H+86	H+88	H+98	WHITE S/L	H+100	RELEASE TWO AIRCRAFT FLT RT P-HAWK A-CROW
			2	13-16	ALTN	H+84	H+87	H+89	H+99	ALTN	H+101	
			3	1-4	ORANGE	H+91	H+94	H+96	H+106	ORANGE	H+108	BUMP 4,8
			4	5-8		H+92	H+95	H+97	H+107		H+109	
		11	4	9-12	FARP#1	H+115		REFUEL				
		5	1	13-16	WHITE S/L	H+117	H+120	H+122	H+132		H+134	BUMP 15
	A		2	1-4	AMBER S/R	H+118	H+121	H+123	H+133	AMBER S/R	H+135	BUMP 6,9 FLT RT P-PHOENIX A-KOBIN
	C		3	5-8		H+119	H+122	H+124	H+134		H+136	
	B		4	9-10		H+130	H+133	H+135	H+145		H+147	BUMP 10
		11	5	13-16	FARP#1	H+149		REFUEL				

(Classification)

**FOLD THIS PAGE OUT FOR
COMPLETED AIRMOVEMENT TABLE**

APPENDIX D
**SAMPLE OF AIRMOBILE
TASK FORCE
OPERATION ORDER**

FOLDOUT



GENERAL SITUATION

The 2d Bde, 52d Mech Div, has been attacking to the northwest. Enemy resistance has weakened substantially during the last few days as the enemy fights a delaying action. Intelligence sources indicate that the last strong enemy position before crossing the NILO River is along the ridgeline running generally along Phase Line (PL) BLUE. After crossing the NILO River, the first good defensive terrain is approximately 40 kilometers (km) to the northwest. A motorized rifle company, at approximately 60 percent strength, is defending the bridge across the NILO River in the 2d Bde zone. The river is unfordable in the division zone and the steep banks make river-crossing operations difficult. The enemy can be expected to fight a delaying action to the NILO River while attempting to reinforce the defenses at the bridge and hold along the river until his defenses in the rear are prepared.

The 52d has been ordered to penetrate enemy defenses and conduct an exploitation to cross the river and prevent the enemy from reconstituting a strong defense. The 2d Bde was ordered to attack in zone, cross the river, and prepare for further attacks to the north-northwest.

The corps commander placed a light infantry battalion under the operational control (OPCON) of the 52d. The infantry battalion will be used to conduct an airmobile

operation behind enemy lines and secure a bridge over the NILO River until linkup with friendly forces. The 52d Division placed the battalion OPCON to the 2d Bde.

The scheme of maneuver for the 2d Bde is for two mech task forces to penetrate the enemy positions at PL BLUE. After the enemy positions have been penetrated, two armor task forces pass through the mech task forces and attack to secure PL GREEN. An airmobile task force (AMTF) conducts an airmobile operation to secure the bridge over the NILO River. After securing PL GREEN, the two armor task forces link up with the AMTF. The terrain to the southeast of PL BLUE favors mechanized infantry; between PL BLUE and the NILO River, the open, rolling terrain becomes tank country.

SPECIAL SITUATION

The 1st Bn, 66th Inf, is in an assembly area to the southeast of the line of contact. At 060600 February, the battalion received the brigade order to conduct an airmobile operation (on order) to secure and defend the bridge over the NILO River in the brigade zone. Linkup can be expected within 4 to 6 hours. The battalion began preparing for the operation after receiving the brigade warning order. The battalion commander initially issued a warning order and then followed up with a written order because the time and circumstances permitted the staff to prepare the order. A copy of the written order follows:

APPENDIX G

MOVING TOW BY HELICOPTER

Section I. PRELIMINARIES

PREPARATION OF
AIRCRAFT

The TOW* missile system, four-man squad, and prime mover (M151) can be transported by the UH-60A helicopter.

When the TOW system squad, and M151 are moved by the UH-60A, two helicopters are required. One helicopter carries the squad and weapon system while the other sling-loads the truck.

TOW systems mounted on the improved TOW vehicle (ITV) or armored personnel carrier (APC, M113A1) can be rapidly removed from the vehicle for movement by helicopter. The dismounted system and four-man squad can be transported by the UH-1 or UH-60A.

The helicopters (UH-1 and UH-60A) are prepared as follows to move the TOW system and squad:

Remove passenger seats or place them in the stowed position to facilitate rapid loading and unloading.

Attach seatbelts and cargo straps to the O-rings on the floor for the squad and weapon.

Remove and stow the small cargo doors and lock the large cargo doors to the rear.

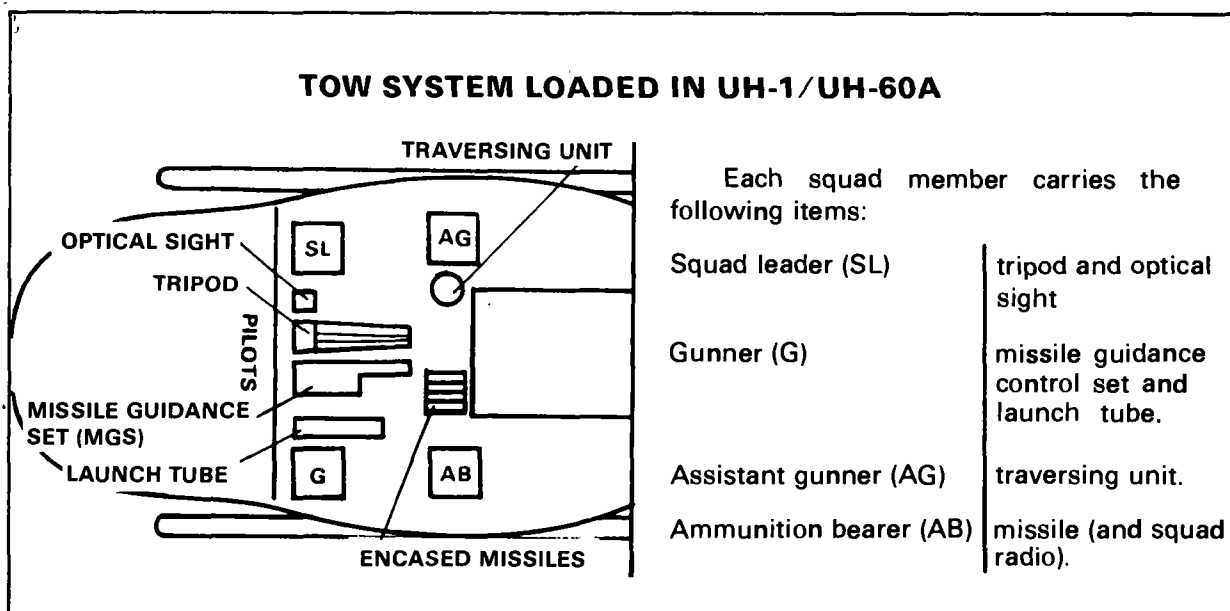
*NOTE: Tube launched, Optically tracked, Wire-guided missile, M220; heavy antitank weapon (HAW).



TOW SQUAD SEATING

The squad leader sits where he can see the landing zone during approach and remain terrain-oriented. The assistant gunner sits on the same side next to the squad leader. This speeds up weapon emplacement since the squad leader carries the tripod and sight and the assistant gunner carries the traversing unit.

TOW components and missiles are placed in the aircraft to be readily available to the person responsible for carrying them.



NOTE: Additional missiles are carried in the aircraft and then stockpiled on the landing site. As firing positions are selected, the missiles are moved to those positions. Once dismounted, the squad can move the TOW system (weight 228 pounds with missile) short distances. To manually transport the TOW and several missiles for any extended distance is difficult. For this reason, the TOW system is landed and picked up as close to its firing position as possible.

Section II. TRANSPORT OF TOW PRIME MOVER (M151)

SLING RIGGING

VEHICLE PREPARATION

Lower and secure windshield and top.

Fold outside rearview mirror inward.

Parking brake on; gear shift in neutral.

PREPARATION MATERIALS

Link assembly.

Slings: One, 3 feet long; and four, 9 feet long (three loop).

Tape.

Padding (about 2 square yards).

TIE-ON PROCEDURES

☐ Attach a 9-foot sling to each of the four lifting shackles on the vehicle.

☐ Attach each free end of the four slings to the 3-foot sling. To do this, twist each 9-foot sling three turns (one twist for every 3 feet of sling). Pass one end of the 3-foot sling through the upper end of each long sling (in turn) and connect the ends of the 3-foot sling to the link assembly.

☐ Where the long slings rub against the vehicle body along the fender wells, padding is taped in place so the slings will not fray during transport.

NOTE: When not in use, pull the sling assembly into the vehicle passenger compartment and tie or tape in place. Insure slack is pulled from the sling to keep the assembly from becoming tangled in the brush.

NOTE: Due to in-flight characteristics, the helicopters are limited to approximately 60 knots airspeed with sling load.



181 114

APPENDIX H

****INTERNATIONAL AGREEMENTS**

Certain provisions of this manual are the subject of the international standardization agreements* listed below:

TITLE	NATO STANAG NO.	QSTAG NO.
Operation Orders, Annexes to Operation Orders, and Administrative and Logistic Orders.	2014	
Relief of Combat Troops.	2082	
Procedures for Marshalling Helicopters in Airmobile Operations.	2351	
Procedures for the Employment of Helicopters in the Antiarmor Role in Support of Ground Forces.	2355	
Procedures for the Recovery of Downed Aircraft/Helicopters While Engaged in Airmobile Operations.	2861	
Minimum Navigational Facilities for Multi-National Airmobile Operations.	2863	
Safety Regulations for Helicopter Users.	2878	

**The acronyms are defined as follows:*
North Atlantic Treaty Organization (NATO)
Standardization Agreement (STANAG)
Quadripartite Standardization Agreement (QSTAG)

TITLE	NATO STANAG NO.	QSTAG NO.
Airmobile Operations (ATP 41).	2904	
Aircraft Marshalling Signals.	3117	585
Detailed Procedures and Techniques for Forward Air Controllers-Supplement No. 1 to ATP-27(A).	3325	
General Rules Covering the Transport of Loads by Helicopters.	3468	
Transport of Troops by Helicopter.	3532	
Helicopter Tactical or Non-Permanent Landing Sites.	3597	
Helicopter Day and Night Formation Flying.	3627	
Helicopter Tactical Operations at the High Hover.	3630	570

****NOTE:** *Standardization Agreements available from:*

Naval Publications and Forms Center (NPFC), 5801 Tabor Avenue, Philadelphia, PA 19120
(DD Form 1425 can be utilized to requisition documents).

3000021093

FM 90-4

8 OCTOBER 1980

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

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